

REGIONAL WOOD ENERGY DEVELOPMENT PROGRAMME IN ASIA

PLANNING FORESTRY EXTENSION PROGRAMMES



Report of a Regional Expert Consultation; in collaboration with:



Forests, Trees and People
Programme

Winrock International
F/FRED Project



FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS
Bangkok, May 1988



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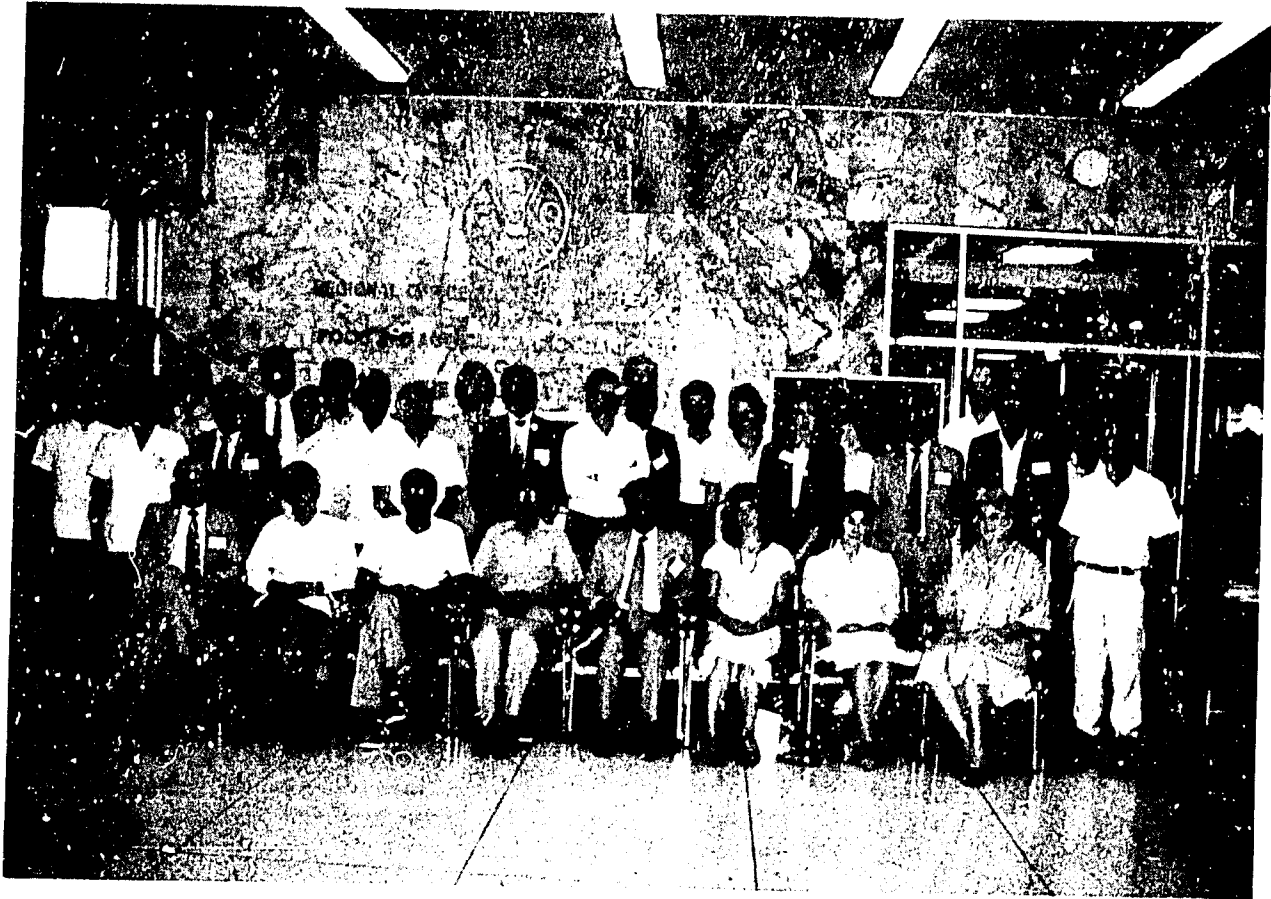
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Foreword

Amongst the project activities in the "Regional Wood Energy Development Programme in Asia", social forestry and extension are of high priority.

The role of rural people in the production and distribution of fuelwood and other forest products is increasingly appreciated. Systematic efforts to assist them in improving their tree management and processing activities through extension were initiated or expanded in most countries, in the last decade.

Asian experiences in forestry extension were last reviewed in 1982 at the FAO/SIDA Seminar on Forestry Extension held in Semarang, Indonesia.

Since then the expansion and intensification of forestry extension activities, particularly in the rapidly growing number of social forestry projects and programmes, have been accompanied by a better understanding of the requisites and constraints in forestry extension.

Hence the need to document these recent experiences, identify successful strategies and exchange the lessons learnt between the countries.

It is from this perspective that the objectives of this consultation held in March 1988, were defined:

1. To assess the present status of forestry extension in the 10 countries participating in RWEDP (Bangladesh, Burma, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam).
2. To identify, discuss and recommend effective forestry extension strategies.
3. To identify needs and priorities for forestry extension development and the role of international cooperation in this development.

The consultation was attended by experts in forestry extension and senior government representatives with much experience in forestry extension management and planning.

The consultation's conclusions and recommendations are a result of intensive discussion based upon the presentation of the country status reports and technical papers.

The central concern for improvement of people's participation in the development, adaptation and dissemination of sound extension messages is reflected in the papers on improved research support and emphasized in the examples of participatory forestry extension, that were presented, discussed and are published in this volume.

On the basis of the presentations and discussions, the participants developed ideas for action and designed an indicative agenda for follow-up action.

A summary of the consultation's conclusions and recommendations is presented in the first section of this report.

Technical guidance and support from FAO - Headquarters (FORE and FODP), Dr. Y.S. Rao (RAPA) and collaborative support provided by SIDA and the USAID/Winrock International - F/FRED Project is gratefully acknowledged.

The project wishes to record its appreciation to Mr. Dale Withington, for his most effective editorial assistance.

I owe my gratitude to Mr. Cor Veer, Rural Sociologist of this project for his contributions to the organization of the consultation and to Ms. Sunit Chaipojcharoen for her dedicated assistance in the preparation of the manuscript.

Special thanks are due to the experts participating in the consultation and to the authors of the country reports and technical papers, for their dedication and the quality of their contributions.

A handwritten signature in black ink, appearing to read 'R. S. Gujral', with a stylized flourish at the end.

R.S. Gujral
Senior Technical Advisor
GCP/RAS/111/NET

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OPENING SESSION



OPENING SESSION

The inaugural session of this regional consultation was attended by about 30 experts and Government representatives from ten countries, experts from RAPA, Mr. H.A. Hilmi, Chief Forestry Education, Employment and Institutions Branch, and Ms. M.W. Hoskins, Community Forestry Officer, FAO-Forestry Department, Rome. From the co-sponsors and donor, Mr. F. Bohlin, FTP, and Ms. C. de Pater, Netherlands Forest Service, were present.

Mr. S.S. Puri, FAO Assistant Director General and Regional Representative for Asia and the Pacific, presided at the inaugural session. Mr. I.A. Qazi, Dy. Inspector General of Forest, Pakistan was elected to chair the session and Mr. E.V. Payuan, Philippines, was elected as rapporteur of the consultation.

In his key-note address, Mr. Puri noted the importance of the consultation's topic, in view of the expansion of community forestry programmes in the region. He emphasized that forestry extensionists draw lessons from agricultural extension, which is well established and organized in most countries.

The chairman, Mr. Qazi, drew the attention of the participants to experiences in Pakistan, that demonstrate the importance of appropriate research support for forestry extension.

Other speakers at the inaugural session were Mr. H.A. Hilmi, FAO - Rome and Mr. R.S. Gujral, STA of the FAO - Regional Wood Energy Development Project in Asia, who proposed a vote of thanks to the chair and extended his warm welcome to the participants attending the consultation.

1. SUMMARY AND RECOMMENDATIONS



Participants preparing consultation summary and recommendations

CONSULTATION SUMMARY AND RECOMMENDATIONS

Introduction

Since the last regional review of forestry extension in Asia, the FAO/SIDA seminar in forestry extension in 1982 in Semarang, new extension programmes have been evolving in most, if not all, of the countries in the area. Believing that there was a need to consolidate and share the knowledge gained from these programmes and to develop more action-oriented programmes, FAO/RWEDP organized an Expert Consultation on Planning Forestry Extension Programmes. Representatives from 10 countries (Bangladesh, Burma, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam) attended the March 7-12 consultation in Bangkok. SIDA and the Forestry/Fuelwood Research and Development Project (F/FRED) provided support.

Participants recognized forestry extension as an important tool in helping people obtain the products and services they need from trees and to better manage remaining natural forests. The basic tasks of forestry extension are to work with researchers, farmers and communities to help generate appropriate technologies, build up an individual's and community's ability to develop themselves, and help diffuse the technology to others. Beyond this basic definition, however, forestry extension is in a dynamic, evolving stage in many countries.

Perhaps the largest difference between this consultation and earlier ones was the emphasis on the need for participation of extension clients in all aspects of forestry projects. Participation is well-established in the vocabulary of forestry extension, and it is being used more often -- but not as often or as well as it should be. One participant told the story of a rural woman asked to tell visitors about a forestry project in which she was "participating." She remained silent. Project staff told her she really should say something to the visitors. She did.

"We don't really know what the project is all about. We don't know what is required of us and what we will get out of it. When we know what the costs and benefits to us are, then we will speak out."

The remaining sections of this summary list the issues that arose and represent the consensus views of the participants.

To Whom Should Extension Be Focused?

Communities, institutions and individuals within or without public forest lands are the focus of extension programmes. Small-scale farmers and the landless are the highest priority of both individual and communal forestry extension. However, extension services should continue to be provided to middle class and larger farmers and large-scale forest industries.

Waste and marginal lands should be given high extension priority.

General public education of children and adults, both men and women, is important to build national support.

Since political support and legislation are vital to forestry extension, politicians are an important extension audience.

How Should Technology Be Extended?

Participation is the key to successful extension. In papers presented at the consultation and included in this proceedings, Banerjee, Malla et al., Hoare and Stephens describe participatory methods of problem identification, examination of alternative solutions, project implementation, and monitoring and evaluation. No single approach is the "best," as this depends on the nature of the project, the beneficiaries, land ownership patterns and the political structures.

All the methods of forestry extension described in papers by Hilmi and Duldulao are useful. Individual, group and mass communication, demonstrations, cross-farm visits, brochures, public relations, etc., all have a place. Demonstrations are particularly effective and perhaps not used often enough. Using existing groups or forming new groups, such as Village Forest Societies, are increasingly popular and seem to be effective. But there has been too much concentration on how to transfer a message and not enough attention has been paid to working with communities to develop appropriate messages.

There should be more national and regional meetings and workshops among researchers, extensionists and beneficiaries to promote continuous and effective communication, ensuring that appropriate technology keeps pace with change. Learning from past experiences through analysis of successes and failures should be an important part of these meetings.

Who Should Do Extension Work?

Extension work will continue to be the job of forestry employees, and an increase in both their quantity and quality is needed. Budgetary constraints make it unlikely that their numbers can be greatly increased or that they can be freed for more extension work by being relieved of other duties. Increasing an extension worker's mobility is one way to increase effectiveness. Another cost-effective option is using training to improve the technical and participatory skills and attitudes of existing extension workers and planners. Criteria for determining the size and efficiency of an extension unit were presented by Hilmi.

The change in skills and attitudes required to be more responsive to the views of land users demands changes in forestry education. There may be a need for instituting changes or improvement in the traditional forestry curriculum to incorporate community/social forestry and other relevant concerns about people's participation. Another option is to include these community/social forestry concerns in short post-graduate training programmes.

Papers by Hilmi and Vergara discussed various ways forestry extension departments can be organized to enhance performance and the advantages and disadvantages of different systems. Different organizational systems are likely to be appropriate for different countries. Whatever organization exists, there must be a well-defined forestry extension policy and strategy, which currently does not exist in many countries. The objectives of forestry extension also need to be prioritized due to a lack of resources.

Community needs for forestry extension services cannot be met solely through the work of forestry departments. Forestry officials should collaborate with other government agencies and non-government organizations. Forestry departments can support these organizations with information, inputs such as nursery materials, and training. All these institutions should work together to avoid conflicting messages and duplication. National steering committees or any appropriate institutional arrangement of representatives from concerned organizations can be set up, as well as working groups at the district or local levels.

Higher authorities should be provided with adequate information to encourage more support to forestry extension efforts. There also is a need to strengthen regional collaboration in planning, training, and exchange of information on items such as technology transfer, infrastructure development, tenurial issues, and benefit sharing.

What Should Be Extended?

Having a technology to offer which can provide economic, social and ecological benefits is crucial to successful extension. This has occurred in some cases, such as in Pakistan, where development of high yielding poplar clones and demonstration on a few farms lead to widespread adoption. A genuinely appropriate technology sometimes can spread without the assistance of formal extension programmes. But this has not happened often enough, and what researchers are studying sometimes does not generate institutional and technical innovations applicable to rural resource systems in marginal conditions. There is widespread interest in making research more useful. In their paper, Raintree and Hoskins proposed an Extension Research and Development methodology in which farmers and extensionists participate with researchers in generation of technologies. The system emphasizes a two-way flow of information and ideas rather than one way. In addition, emphasis was laid on the need to understand socio-economic conditions and consider innovations in local organizational and institutional arrangements.

This method will lead to a better fit of research results with the diverse ecological and social conditions that exist throughout a country and region. Diokno's paper describes such a program of a research institution in the Philippines.

Wood production and energy conservation measures are not the only technologies that should be extended. People are also interested in fodder, green manure, fruit, medicinal plants, thatching materials and other tree products and services.

Besides technology, extension workers should also develop and strengthen people's problem solving and community organizing abilities to better enable them to solve community forestry problems.

Inputs or incentives such as credit, supplies, and marketing, including infrastructure assistance, are required. Without them, even the best extension methodology cannot ensure success. Making extension workers responsible for these items reduces actual extension time, but such inputs are necessary if other agencies have not been set up to provide them.

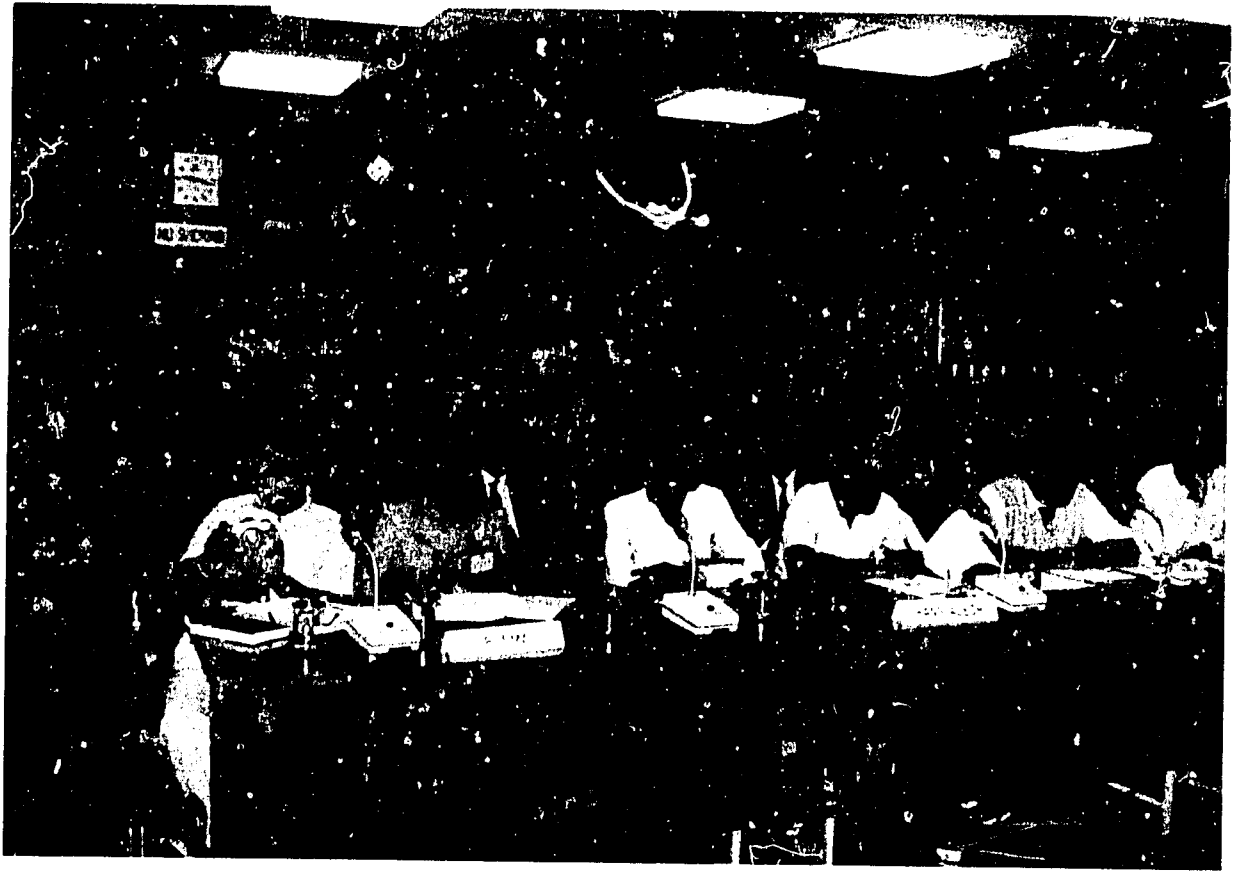
Land and tree tenure arrangements favorable to the adoption of forestry innovations are essential inputs or incentives for people's participation and should be recognized. A kind of individual or communal "ownership" can be established by granting people leases to public and common access lands or the rights to whatever they plant. Such usufructuary stewardship programs are becoming increasingly popular. Land released in such programs is often degraded and difficult to restore, making the job of extension so difficult that some participants wondered if it was worth trying. Others said that little other land was available, and that sustained provision of inputs and assistance can make such projects succeed. Alim's case study of the community of Betagi (now called Roushan Palli) in Bangladesh illustrates this point.

Summary

1. Forestry Extension is an important tool in the effort to provide people what they need from trees and forests and to better manage remaining natural forests.
2. Participatory extension methods are the most effective and are being used, but probably not as often or as well as necessary. Extension workers and communities need further training in these methods, and improved methods need to be developed.
3. If extension workers have more appropriate technology to extend, their work becomes easier. Forestry scientists need to concentrate their efforts on technologies more appropriate to farmers. This can be achieved by developing workable arrangements between researchers and farmers, and by training extension workers and community organizers to work with farmers in action research.
4. The challenge for forestry extension is so great and the resources so limited, that forestry extensionists should collaborate with other government agencies and non-government organizations. The activities of all these agencies need to be coordinated.
5. Land and tree tenure are a necessary tree-planting incentive to people.
6. The landless and small-scale farmers should be the highest priority for forestry extension programs.

7. Besides technology, people need to develop their problem solving and community organizing skills so that they are better able to help themselves.
8. To train extension workers in social forestry and participatory methods, existing courses should be reviewed and modified if necessary, or post-graduate short courses should be established. For professional foresters charged with the responsibility of forest conservation, training should emphasize change of attitudes needed to suit their gradually changing roles from implementors to promoters. Motivation of extension workers should be emphasized, preferably by good personnel management, career planning and other incentives.
9. Training should be planned for men and women on different levels, such as government policy makers, planners, professionals, technicians, farmer leaders, religious leaders and NGOs.
10. To make forestry extension planning more meaningful, it needs to be done both at the national/regional level and at the village level. The former is useful for resource allocation for the programme.
11. School programmes are an effective strategy for promoting awareness of the importance of forests.
12. As much as possible, use must be made of appropriate indigenous technologies, knowledge and experience.
13. Greater involvement of community based NGOs should be encouraged. Community organization should be strengthened, so as to be able to seek political support for the local forestry programmes.
14. A review of existing legislation, organization, programmes and manpower should be made for planning and implementing forestry extension programmes.
15. Villagers should be actively involved in monitoring and evaluation.
16. Regional cooperation on forestry extension should be strengthened through exchange of information, expertise and technical know-how.

2. ABSTRACTS COUNTRY REPORTS ON STATUS OF FORESTRY EXTENSION



*

FORESTRY EXTENSION IN BANGLADESH

1

A.H.M. Monzurul Karim

Fuelwood supply is a problem best tackled with the active participation of a community. Accordingly, a people-oriented concept, known as community forestry, has been adopted as the basis of forestry extension in Bangladesh. The government intends to continue organized fuelwood plantations on government lands with the cooperation of villagers. It is therefore imperative to develop village groves in 68,000 villages and to plant on both sides of roads, railways and embankments. In each village, fruit and fuelwood tree seedlings, technical advice and training are provided free for village groves and homestead plantations. Cooperatives also are formed to plant and protect strip plantations along railways, roads, canal banks, etc. Society members share harvest benefits as decided by the government and are allowed to raise shallow-rooted agricultural crops in between the rows of trees. Plowing is not allowed.

An agroforestry program also has begun for landless farmers who have encroached on government land. Farmers are provided seedlings of fast-growing fuelwood trees, fertilizer and seeds of agricultural crops for the first year. They can cultivate food and cash crops along with the fuelwood crops and receive a non-transferable land-lease permit. They also will receive a share of the profits of the forest crops.

Forestry is one of the sections of the Ministry of Agriculture. At present there are about 97 extension nursery centers in the country, with each center covering about 1,500 km². There are 27 professional, 380 sub-professional and 400 technical level staff engaged in extension activities.

Thousands of people in voluntary organizations and local, national and international non-government organizations also are involved in forestry extension. Many have been trained in the Forestry Extension Centres. Mosque societies have been one of the most successful local organizations, and local organizations in other countries are considering their success as a model to emulate.

There are several constraints to implementing an improved extension service. These are:

1. Land for projects is becoming scarce.
2. Project funds are in short supply.
3. Funds for creation of barefoot squads of extension workers at the grass-roots level are lacking.
4. Coordination with other government development agencies is poor.

1. Divisional Forest Officer, Dinajpur, Bangladesh

* (Editor's Note: See also the paper on the Betagi Case Study in this volume)

FORESTRY EXTENSION IN BURMA

1

Saw C. Doo and Maung Maung Htun

The Burma Department of Forestry has been promoting knowledge of forestry to citizens for 20 years, but a formal extension department was not formed until 1982.

Field activities are coordinated by Forest Department staff assigned to Townships, and the major projects they are developing are village woodlots for firewood production. From 1983 to 1986, more than 2,000 acres in 325 villages have been established. Preferably such woodlots are established within 3 miles from the village. The acreage per woodlot depends on the number of households in the village, the status of existing resources and the availability of land. As a rule it is assumed that 100 households require 50 acres planted with fast-growing species such as Leucaena leucocephala or Cassia siamea, at 600 trees/acre and managed in 5 years rotation. The Forest Department provides free seedlings and technical assistance. The people can use products from the woodlot and are responsible for conserving it.

A major constraint facing the extension program is a shortage of trained personnel. A majority of the rural people also has to learn more about forestry.

In addition to the extension activities carried out by the Forest Department, the Forest Research Institute also has an Extension Section. This is responsible for training field foresters in extension methods and producing extension materials for farmers, wood workers etc.

Demonstration plots e.g. for teak and bamboo, have been established by the section. A total of 90 research leaflets, 30 technical documents and 10 pamphlets have been published by FRI for extension purposes. Also here a major constraint for strengthening the extension component is a shortage of trained personnel.

1. Dy. Director and Asst. Director, respectively, Forest Research Institute, Yezin.

FORESTRY EXTENSION IN INDIA

by
P.M. Shingi^{1/}

Introduction

This paper is based on the presentations and discussions in an FAO/RWEDP - IIMA workshop organized by the author and held in Ahmedabad from 11 to 13 January, 1988.

Twenty-four experts participated in this workshop to assess the present status of forestry extension in India, to identify issues for its further development and to discuss ways and means to bring such development about. The report of this workshop is available with Project Secretariat^{2/}.

Social forestry in India

In the Seventh five year plan (1985-1990), an outlay of 37,950 million Rps. for social forestry is proposed. A rough breakdown of current annual investments in social forestry shows the different programmes involved:

	Million Rps.
National Rural Employment Programme	1,000
Rural Labour Employment Guarantee Programme	1,000
Drought Prone Area Programme	400
National Wasteland Development Board	600
Bilateral or World Bank Loans	800
State Funds	<u>1,200</u>
Total	5,000 Million Rps.

(Stewart, 1988)

The Seventh Plan indicated a target of six million ha. to be planted by strengthening research and extension activities.

^{1/} Professor, Indian Institute of Management, Ahmedabad.

^{2/} FAO/RWEDP - IIMA. 1988. National Workshop Planning Forestry Extension Programmes, India. Bangkok.

Important features of social forestry include: a) coverage of all the fuelwood deficit districts, b) massive tree-planting on community and government-owned degraded lands, c) setting up of 100 forestry extension centres, d) adoption of 5,000 villages under the "lab to land" programme, e) establishment of demonstration farms to propagate silvo-pastoral systems and f) strengthening of social forestry organizations.

These are components in addition to on-going schemes such as rural fuelwood plantations with a 50 percent grant from the Central Government; distribution of free seedlings to two million poor rural families; encouraging small and marginal farmers to raise nurseries, and encouraging active participation of voluntary organizations.

It was also proposed to set up a forestry extension directorate and 10 regional centres to improve the linkage between research and extension and to develop suitable extension methods. One billion Rps. has been proposed for these purposes.

Separate wings at the state level were also proposed to look after social forestry extension and training.

With the setting up of the National Wasteland Development Board, more emphasis is laid in social forestry programmes, on the development of wastelands, for the benefit of the rural poor.

Estimates of wastelands vary from 50 to 175 million ha. NWDB has a target of greening 5 million ha. per year, as compared to the Seventh Plan target of 6 million ha. in five years. It is hoped that this more ambitious target can be achieved through greater decentralization and participation by rural people in tree planting and management.

The shift from the implentor's to a promotor's role of the forest agencies that this requires, is taking place in many states in India. Review of experiences with forestry extension in Andhra Pradesh, Gujarat, Karnataka, Rajasthan, Uttar Pradesh and West-Bengal during the workshop, brought out some crucial issues to be considered in forestry extension development.

Development of forestry extension in India

Manpower and organization

Numbers of forestry extension workers at different levels have been and still are being increased considerably in many states.

In Gujarat, one range forest officer is assisted by two foresters per each of the 194 blocks.

In Karnataka and West-Bengal motivators are hired to assist the professional foresters. Three thousand motivators complement the work of 400 extension and almost 600 foresters allocated to 156 range officers.

This Social forestry staff is spread across 14 districts encompassing about 7,000 villages, given an average load to the staff as follows.

<u>Grade</u>	<u>No.</u>	<u>No. of village/staff member</u>
RFO	156	48
Forester	580	13
Extension worker	394	7.5
Motivator	3,000	2.5

In West-Bengal proposals are submitted for over 200 posts of Forestry Extension Workers and 1,000 Motivators. Similar arrangements are made or contemplated in other states.

An important issue in organization is whether to have specialized forestry extension workers, or a combination of territorial and extension duties.

In Gujarat a more specialized model is preferred, whereas it was reported from West-Bengal that foresters felt that their extension activities greatly facilitated their territorial management tasks.

Training of forestry extension workers and motivators is in many states felt to require improvement.

Institutional requisites and obstacles

That the change in forest policy expressed in the emergence and expansion of social forestry has been rapid and drastic is illustrated by the obstacles formed by regulations formulated under more conventional forest policy conditions.

Particularly restrictive regulations regarding felling of trees on private lands and processing/transport of produce were singled out as a serious disincentive to tree planting and local forest management. Similarly, the importance of improved land tenure arrangements was emphasized. The success of Group Farm Forestry in West-Bengal was cited as an example of opportunities that can be realized.

Linkages with agricultural extension were also discussed, and it was pointed out that technology transfer and seedling distribution, etc., could well be taken care of through participation of forest officers as subject matter specialists in the agricultural Training and Visit System that has been introduced in most of India.

It was, however, also acknowledged that even if the rigidity inherent to this system were lessened and the focus widened from the present technology transfer to a farm-focus, that many of the issues and approaches required for forestry extension cannot be addressed through agricultural extension. Linkages between forestry and agricultural extension have been established in some states.*

* See also Banerjee, p. 132-133 this volume.

Extension R and D and the role of N.G.O.s

It was generally agreed that research support for forestry extension was inadequate. The generation of appropriate technologies and innovations in local institutional arrangements was felt to require different more community based R and D approaches.

Examples of N.G.O.s following such participatory learning approaches were presented. These illustrated the potential role of professional N.G.O.s in India in the development and testing of innovative solutions. And it was suggested that this potential be more systematically explored, also by government research institutes and universities. The need to establish linkages with target-oriented government programs was emphasized, so as to enable these programs to benefit from the lessons learnt by these community based, extension-research programmes.

Participatory planning and decentralization

The desired participation of various categories of villagers and the diversity of conditions from one village to the next necessitate careful project identification at the village level.

During the discussions at the workshop, so-called "micro-planning" approaches were referred to. In these approaches the identification of needs of different categories of villagers, resources, and the existing local organizational arrangements are analysed by forestry extension workers in consultation with villagers and potential innovations discussed with them.

To allow for such village-level planning, decision-making will have to be decentralized to district and lower levels in the forestry extension organization and skills and knowledge accordingly developed. It was generally agreed that further development of these approaches should get priority in forestry extension development, and that training of forestry extension staff should focus on imparting the required skills and knowledge, i.e. planning skills and sound knowledge of both technical and socio-economic/organizational innovations.

FORESTRY EXTENSION IN INDONESIA

* 1/

Beni D. Nasendi and Mursidin

Forestry officials at the central, provincial, district and sub-district levels are all involved in forestry extension with individuals and organizations that directly or indirectly use forests. The location for most forestry extension activities are the Rural Extension Centers. Each REC serves 1 to 2 subdistricts. About 7-12 agricultural field workers and 4-8 forestry field workers are stationed at each REC. There are about 6,760 forestry extension workers. Each REC is also led by an extension supervisor, an agricultural extension programmer and a forestry extension programmer, who supervise and evaluate the field extension workers. Extension specialists at the district level supervise all REC activities. Seventy-three Social Forestry Field Workers are assigned to the Forestry Utilization and Industry extension worker program.

The Ministry of Forestry's extension program through the RECs is largely a Training and Visit system. Extension workers plan regular field visits to contact farmers organized into groups. Each extension worker is responsible for 8-10 groups. Each group may have 50-100 members. The groups serve as a forum for learning, cooperative problem solving and participatory development. All work plans for the groups, including the extension worker's visit schedule and proposed extension materials, are discussed with the groups. Leaders of farmer groups also attend a workshop to discuss the results of a REC's yearly evaluation. Results of these discussions form the basis for the next year's program.

Extension workers also encourage the participation of related informal groups, such as Boy/Girl Scouts, Natural Resources Conservation Groups, Cadre for Permanent Farmer Resettlement Efforts, and the Wood Industry Association so that they gain knowledge about forest uses and conservation. Contacts are maintained with formal and informal leaders of government and non-government organizations at the subdistrict and village levels, as they are potential resource persons or Forestry Extension Volunteers and can help build the program's influence.

Typical subject matter taught at RECs includes forest industry and utilization techniques; forest conservation; soil and water conservation; production of firewood, cattle fodder, fruit and estate crops; industrial wood production; reforestation techniques; permanent cultivation techniques for shifting cultivators; development of sericulture and home industries; and methods to increase forest production without changing its ecological functions. Individual, group and mass media extension methods are used.

1. Chief, Division Forest Industries Planning and Chief Acting Director for Forestry Extension, Ministry of Forestry, respectively.

* Editors' Note : See also FAO/RWEDP/FONC/Fac.For. UGM. forthcoming. Planning and implementation of Social Forestry Programmes in Indonesia.

Besides increasing the incomes of shifting cultivators, wood gatherers and villagers, another aim of forestry extension is to prevent the destruction of the forest. Regulations and prohibitions that limit trespassing and use are enforced, but supplemented with information and education to make people aware of the importance of forest conservation.

The basic education required of extension workers is a degree from a Senior, Agricultural, or Forestry high school. Extension programmers and supervisors must have a degree from a Forestry or Agricultural College. Extension specialists need a basic college degree in formal agriculture or forestry studies. All personnel also receive on-the-job training.

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FORESTRY EXTENSION IN NEPAL

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N.B. Shrestha

The government organization responsible for general forestry extension, particularly community participation in such activities, is the Motivation and Education Unit of the Community Forestry and Afforestation Division (CFAD) of the Department of Forest, which is part of the Ministry of Forest and Soil Conservation. CFAD evolved from a Community Forestry Programme begun in 1980, and includes Community Forestry, Stove, Monitoring and Evaluation, Afforestation and Logistic Support units, which work with the Motivation and Education Unit in extension programs.

Extension

A comprehensive extension program has been organized to inform the villagers about new forest policy and legislation and benefits of participating in and managing their own forest resources. A survey had indicated that while people were convinced about the need of afforestation, they lacked information about new government policies and legislation on Panchayat forests and Panchayat protected forests.

District Forest Controllers and Community Forestry Assistants are the most important extension agents at the government level. Nursery headmen and forest watchers play the most important extension role at the village level. Extension activities at the district and village levels include face to face contact with villagers, Panchayat meetings, Forest Committee meetings, District meetings, lectures at schools, and study tours for village leaders and social workers. At the national level, extension tools include weekly radio programs, articles and special supplements in newspapers, and National Tree Planting Week.

1. Chief, Community Forestry and Afforestation Division

* Editors' Note: See also the article by Malla, Fisher and Gilmour this volume.

Training

Training of forestry staff is conducted at various levels. District Forest Controllers and attached forest officers are trained through the UNDP Development Training and Communication program in Bangkok. Community Forestry Assistants and Assistant Rangers are given extension training in the training wing of the Ministry of Forest and Soil Conservation. In order to enable village communities to establish and manage their own forests, District Forest Controllers train nursery headmen to produce and plant trees for community forestry projects.

Recommendations for the Future

The extension program is being developed. A good beginning has been made, but sustained efforts are needed to continuously update the knowledge and skill of extension workers. Extension activities currently being implemented by various projects need to be coordinated by the Ministry of Forest and Soil Conservation. Grass roots level training involving forest committee members, school teachers, farmers and others should be organized to teach simple forestry and soil conservation practices. The Regional Directorates of Forestry should be suitably equipped to train forestry extension staff. An organizational restructuring is also needed to strengthen extension at various levels, and The Institute of Forestry at Tribhuvan University must develop curriculum for professional and sub-professional forestry extension workers.

FORESTRY EXTENSION IN PAKISTAN

1

Ishtiaq Ahmad Qazi

State forests are not extensive in Pakistan and 90% of the fuelwood used in the country comes from farmlands. The current government policy thus emphasizes tree production on private lands, and this is the focus of extension programs. Forestry extension programs are of recent origin. In one successful program, thousands of hectares of privately owned barren hills have been reforested/afforested. The World Food Programme assists the project by providing commodity aid.

Other projects with an important extension component include Watershed Management Research and Education (FAO/UNDP) at the Pakistan Forest Institute; Kalam Integrated Forestry Based Development Project (Swiss-funded) in Swat; the Dutch-funded Malakand Social Forestry Project and the USAID Forestry Development Planning Project with its Farm and Energy Programme. In the latter a sociological survey has been carried out, which has generated useful information on elements critical to project success. The survey tried to answer the following questions:

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1. Deputy Inspector General of Forests, Ministry of Food and Agriculture

- . - What groups of people will be more receptive to tree-planting programs?
- What tree species do different communities prefer?
- What are the constraints to tree planting in different communities?

This study will help develop a more participatory extension strategy. In the meantime, foresters are contacting villagers through open and informal meetings to explain the need for wood production, the role of trees in the rural economy and to motivate them to plant trees. Through dialogue, prospective tree planters are identified and then involved in actual tree planting after having received on-the-job training.

Farmers also are involved in raising nurseries, which can become a source of income to them. Farmers also are taken to see planting sites in other locations, including other countries.

The importance of research to extension also has been demonstrated in Pakistan. The Pakistan Forest Institute selected a few proven poplar clones and established demonstration plantings on some farms. Their fast growth and an available market created profits that encouraged them and surrounding farmers to plant poplars on a wider scale.

Despite many successes, much work remains. Farms average only 8-12 trees per ha, although 25-40 could be maintained without adverse effects on crop yields. Funds are needed to train a larger force of extension workers, improve agroforestry/forestry technology through research, and to develop packages of communication materials to help convey extension messages to farmers. The marketing system needs to be studied to ensure that market forces provide more incentives. Successful extension programs in Asia also need to be identified, properly described and disseminated for adaptation and possible use in other areas.

FORESTRY EXTENSION IN THE PHILIPPINES

1

Edwin Payuan

Forestry extension in the Philippines began almost 24 years ago when the College of Forestry of the University of the Philippines was authorized to coordinate in collaboration with existing government forestry and information agencies, a public information/education program on the values of forests. In 1980, the Bureau of Forest Development of the Ministry of Natural Resources (MNR) organized its Forestry Extension and Education Division and Public Affairs Staff. Two years later, forestry extension efforts were realigned into more people-oriented forestry programs and projects with the creation of the Social Forestry Division and the launching of the Integrated Social Forestry Program.^{2/}

The Social Forestry Division is mandated to: a) formulate policies, plans, programs and guidelines for the identification, establishment, development and implementation of social forestry projects; b) develop guidelines in the conduct of forestry extension; organization and management of forest occupants into viable community associations and/or cooperatives; conduct surveys and studies of forest-based cropping systems compatible with the socio-economic and cultural development of forest occupants; establishment and expansion of markets for forest-based farm products; and issuance of Stewardship agreements; c) develop effective participatory approaches to upland development; develop and administer a continuing forest conservation education program; d) plan, coordinate and package a forestry extension delivery system involving dissemination of information on indigenous and modern technologies; e) establish and maintain effective linkages with forest occupants and other agencies/institutions involved in upland development; f) develop and maintain an effective M&E system for Integrated Social Forestry (ISF) projects and related activities; and g) provide general supervision in the development and implementation of ISF projects.

The Department of Environment and Natural Resources (formerly MNR) is being reorganized with the following staff bureaus and attached agencies involved in forestry extension under its umbrella: Forest Management Bureau (formerly BFD); Ecosystem Research and Development Bureau (formerly FORI)^{3/}, Protected Areas and Wildlife Bureau, Environment Management Bureau, National Electrification Administration, Natural Resources Development Corporation and the Public Affairs Office. Other government agencies involved in forestry extension are the Department of Agriculture and Food, the National Irrigation Administration, Agricultural Training Institute and Agricultural Research Office, Department of Energy, Philippines National Oil Company and National Power Corporation; Department of Agrarian Reform; Department of Science and Technology, Forest Products Research and Development Institute and the Philippine Council for Agriculture and Resources Research and Development; Philippine Information Agency and others.

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1. Forest Development Chief and OIC, Social Forestry Division, Forest Management Bureau, Department of Environment and Natural Resources.
 2. See the other paper by Payuan, this volume, for a more complete description of this program.
 3. See Diokno's paper, this volume, for a description of this program.

Major forest users, such as holders of Timber License agreements, Industrial Tree Plantation agreements, Tree Farms and Agroforestry Farm Lease agreements, including the Philippine Wood Producers Association also conduct forestry extension work. Academic institutions, local and international non-government organizations, and volunteer organizations also are involved in forestry extension.

FORESTRY EXTENSION IN SRI LANKA

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Dayananda Kariyawasam

The main government organization involved in forestry extension is the Forest Department, which is part of the Ministry of Lands and Land Development. It has an extension staff of about 21, including the head of the extension division, 2 assistants at headquarters, 8 extension officers and 12 junior staff (3 at headquarters, and 9 at nurseries). There also are 15 part-time assistant conservators at territorial divisions. At the operational level, extension staff work with other Forest Department personnel and people working with the Central Environment Authority, the Ministry of Power and Energy and national non-government organizations. The forest department provides training, seedlings, technical assistance and extension materials.

The two main national extension projects are to create awareness of the problems of deforestation and what can be done and demonstrations of agroforestry and tree planting on the sides of canals, roads and railways. Target groups range from landless poor farmers to well-off farmers. Women and youths also are targeted. A separate extension package has been developed for each group involving different production technologies.

Besides official extension agents of the Forest Department, other people, both government and non-government are used in extension, as there are not enough official extension agents. Other government staff used as extension workers include village officers, teachers, and staff of other rural development agencies. Non-government extension aids include religious leaders and members of non-government organizations, service organizations, farmer associations, and youth and children's societies. These people are trained in tree planting, agroforestry and extension methods and provided with extension materials. One school teacher who started many successful projects was sent on an international forestry extension study tour with Forest Department officers.

The basic extension methodology is as follows:

1. Pick village level leaders and conduct seminars and workshops.
2. Form village forest societies and involve them in planning and managing extension activities.
3. Reach school children through teachers.

1. Head of Forestry Education, Forest Department.

4. Expose farmers associations to extension activities to reach large numbers of farmers.
5. Form well-informed "core groups" through rural youth societies.
6. Create rural cooperatives of tree growers to purchase needed inputs cheaply and to market forest products
7. Utilize Lions and Rotary clubs to participate in pilot projects.
8. Motivate religious and fisheries societies.

Incentives for various extension programs range from nursery supplies, agreements to purchase seedlings produced, seedlings, and land for demonstrations, community woodlots and individual farmers who have encroached on the forests.

A priority for future development is identifying problems farmers face in forestry and agroforestry and starting pilot projects with farmer participation to help solve these problems. More land also has to be released to landless farmers, who also need material and information help.

FORESTRY EXTENSION IN THAILAND

1

Komon Pragtong

There are three primary organizations working in Forestry Extension in Thailand --- the Royal Forest Department, the Tree Farmers Association of Thailand, and the Population and Community Development Association.

Royal Forest Department: Extension activities have been conducted on forest conservation, forest land use and tree planting. Work on these programs has been carried out by divisions at the national level, 21 regional offices and 72 provincial offices. At the national level, two recently created divisions are particularly involved in social forestry and extension. One is the Office of Land Usufructuary Certificates and the other is the Office of Private Reforestation and Extension. Extension work is concentrated in the following programs:

Forest Village Program: Members of 93 villages have been settled in lowland areas suitable for agriculture and allocated 2.4 ha for crop production. They also are employed in large-scale tree plantations.

Granting Usufructuary Certificates: More than 600,000 farmers encroaching on national reserved forests are being given a Usufructuary Certificate for 2.1 ha. This is intended to be an incentive to develop the land, which should reduce pressure on remaining forests.

1. Chief, Community Forestry Development Branch, Nat. For. Land Management Div., Royal Forest Department.

Community Woodlots: Demonstration community woodlots on public, temple and school lands have been established in 17 communities.

Tree Seedling Distribution: Forty-seven nurseries around the country are producing free seedlings for planting on private and public lands.

Agroforestry Promotion: Agroforestry demonstration plots have been established on six sites.

Integrated Watershed Development Program: There are 68 integrated watershed rehabilitation units responsible for replanting in degraded forest areas. Each is involved in many activities that try to elicit the participation of local people.

There also are several new projects funded by agencies such as UNDP, FAO, USAID and the Ford Foundation.^{2/}

Tree Farmers' Association of Thailand (TFAT): TFAT was established in 1968 to be the center for the promotion and propagation of private reforestation efforts in Thailand and to encourage all families to participate. The group claims about 50,000 members. Its three divisions are Academic and Extension, Executive Branch and Foreign Affairs. In its extension capacity, it attempts to be a center of forestry technology exchange between the private sector and the government. It offers trainings, collates data on problems and constraints that need to be further analyzed, and lobbies for needed changes in forest legislation.

The Population and Community Development Association: PCDA's forestry work emphasizes the promotion of sound environmental protection at the community level by promoting communal woodlots in target villages.

Greater coordination between these three organizations and other government and non-government organizations involved in forestry and rural development is needed.

2. See papers by Grandstaff, Vergara and Hoare, this volume, for more discussion about some of these programmes.

FORESTRY EXTENSION IN VIETNAM

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Nguyen gia Thuy

All forestry institutions in Vietnam have been organized and are managed by the Ministry of Forestry. It is supported by departments, research institutions, and a number of training colleges and technical schools. At the provincial level, the leading office is the Forestry Department. Depending on the forest area and its importance to the province, these departments set up appropriate sections, which may include research sections and training schools.

Each district has its own forestry section led by both the director of the Forestry Department and the chairman of the People's Committee. Some districts have their own forestry production and processing enterprises. The district forestry section also helps the forestry boards established by some communes. These forestry boards have not yet accomplished much because their personnel have not yet received much training.

Almost all MOF extension specialists have been trained in colleges and technical schools. But what they learn at these schools and what they need to know to succeed while working do not always coincide.

The extension programs have had some large successes. The late President Ho Chi Minh instituted "Planting Tree Tet", a national tree planting program in 1960, and 2 billion trees were planted by 1981. Since then, 1 billion more have been planted. People actively take part in tree planting programs because they believe that they own the trees whether they are planted in public or private programs.

There are still many shortcomings in educational activities however. Although there is a large demand for technical literature, not enough is produced. The translation and distribution of foreign information also are insufficient.

Some local governments at the provincial and district levels have not taken active measures to support people's tree planting efforts. More pilot projects need to be established in these areas.

Since tree planting is an important part of the government's development plan, it might be necessary to enforce cooperation from people in some cases.

More attention must be paid to the selection of tree species that are suitable to each area. Trials established by different organizations must be coordinated for best results. Local species also must be considered.

Forestry extension workers also must coordinate their activities with other rural development workers.

Education and training of forestry extension workers and the people must continue to develop. Education encourages enthusiastic participation and assistance of the people as well as improves their skills.

1. Wood Energy Expert, Forest Inventory and Planning Inst., Hanoi, Vietnam.

3. TECHNICAL PAPERS

3.1 RESEARCH SUPPORT



Assessing root development of bamboo cuttings,
during field trip

APPROPRIATE R&D SUPPORT FOR FORESTRY EXTENSION

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J.B. Raintree and M.W. Hoskins

1. INTRODUCTION

Any discussion of forestry research and extension must begin by acknowledging that the past decade has witnessed an enormous expansion in the potential scope of forestry in developing countries. This change is an expression of essentially two interrelated factors: 1) a broad movement toward increased participation of local people in development, and 2) a new awareness of the multiple roles trees can play in rural development. The envisaged expansion of the forestry extension repertoire has been fostered by two parallel developments: 1) the growth of community forestry since the World Forestry Congress of 1978, and 2) the emergence of agroforestry as a new focus for research since the establishment of the International Council for Research in Agroforestry (ICRAF) in 1977.

The implementation of this expanded role, inevitably, has lagged behind its conceptualization. A certain amount of the observed hesitancy stems from the fact that expanded field action is itself fraught with uncertainty about numerous substantive issues -- ranging from questions of a biotechnical nature (which trees to plant for which purposes, in which arrangements and under what management regimes, etc.) to questions of an organizational or socio-political nature (how to make the new innovations available to farmers, how to ensure equitable distribution of benefits, what institutional arrangements are needed to stimulate local participation in planning and implementation, etc.).

To obtain the information needed to resolve these uncertainties, we believe, will require a broadly conceived approach to research and development, and to do it in a practical and cost-effective manner will require new kinds of linkages between R&D and extension activities. Much of the needed research is in the nature of "action research" (providing strategic feedback on critical operational issues), "perturbation experiments" (probing the existing system through experimental interventions) and "extension trials" of innovations in the context of an on-going monitoring and evaluation system. We recognize that the institutional innovations that these types of research may imply are not to be taken lightly, but we are forced by our understanding of what is actually required, and encouraged by the spirit of innovation in contemporary forestry, to entertain some bold proposals.

1 Principal Scientist, ICRAF and Community Forestry Officer, FAO, respectively. Views expressed in this paper are those of the authors and do not necessarily reflect official views of ICRAF and FAO.

We will deal both with "community forestry" as a broadly conceived dimension of rural development and with "agroforestry" as an efficient technical focus to promote the use of multipurpose trees and cropping systems to satisfy a diversity of local needs. It is in the area of agroforestry, as a "new" approach to integrate land management, that the issue of R&D support for extension becomes most critical. Much of what is called "community forestry" from a social point of view is seen as "agroforestry" from a technical point of view. To the forestry extension worker it matters little what you call it. What is important is that there be sufficient technology, methodology and research support for an expanded role in promoting a wide variety of trees for a multiplicity of uses in local communities. For relevance of such extension efforts to the client communities, it is important that it be participatory.

Throughout this paper we will use the term "research" in the broadest and most pragmatic sense to refer to any systematic data acquisition and analysis activity intended to provide information needed for operational purposes. This includes social as well as biotechnical research, and it may also refer to the acquisition of information for project planning, monitoring and evaluation, comparative studies of project successes and failures, and the kind of research necessary to develop extension materials and recommendation domains. We will first examine the nature of the information requirements for participatory extension in a somewhat idealized fashion and then, on the basis of this needs assessment, go on to explore some of the ways in which effective R&D support for this kind of extension might be organized.

Some Common Sense About People's Participation

There are several distinct motivations for promoting people's participation: 1) to make use of indigenous technical knowledge, 2) to give local people the opportunity to define their own objectives, and 3) to take advantage of the effects of participation in activating social processes involved in decision making and adoption.

While indigenous technical knowledge may not always provide complete solutions to problems of development, particularly in situations of dramatic or unprecedented pressure, it can contribute significantly to problem solving when it is combined with new inputs of knowledge from outside the local system. Aside from the intrinsic technical value of local knowledge, technologies which incorporate familiar bits of traditional knowledge and technique are generally easier to assimilate than those that are totally foreign to the local technical tradition.(2) Likewise, technologies which address local development objectives are obviously more likely to meet with success than those that do not. However, poor people are not always in a position to address or even to perceive all of their long-term needs. Even if they do, they may not think it within their power to effect a solution (see for example Blakie 1987 on soil conservation).

(2) See Howes 1979, Bell 1979, Brokensha et al. 1980, Klee 1980, Biggs and Clay 1980, Richards 1985, and Farrington and Martin 1987 for general perspectives on the role of indigenous technical knowledge in development; see also Raintree 1978, Belshaw 1979, Hoskins 1984, and FAO 1985 for case study examples.

Although local knowledge and objectives must always be respected, it should also be acknowledged that extension workers have a role to play in supplementing local knowledge and raising people's aims. It is from this point of view that we say, unequivocally, participation is a two-way street. Rather than become fixated at an intermediate stage, we would like to advance to stage three in the following progression:

Stage	Dominant Paradigm	Comment
1	The experts know best	Obsolete but still dominant (e.g. T&V)
2	The local people know best	Long overdue and increasingly in fashion
3	Both experts and local people each have unique areas of expertise, which collectively provide a better basis for development than either alone	The most realistic and genuinely helpful stance in the long run

The problem, of course, is for the change agent to play an activist role at stage 3 without reverting to stage 1 patterns of interaction. There is no room here for one-way communication -- in either direction! Listening skills are essential, but so are communication skills, e.g. of the relevant and timely input sensitively delivered in culturally appropriate message forms that people can readily assimilate. We know much more about how to do this than we currently put into practice (see Farrington and Martin 1987 for a review of participatory research techniques; among the techniques reviewed, those most consistent with the approach recommended in this paper are Raintree 1978, Tan 1986, and Fernandez 1986).

Logically, the identification of research needs is contingent upon an assessment of information requirements for extension effectiveness. Operationally, the essential questions to be answered to put any extension programme into operation are: What to extend and how to extend it? In answering these questions, indeed, in any attempt to foster tree planting or other beneficial changes in land use, we are always dealing with two dimensions: the technological and socioeconomic/organizational. Both technical and socio-economic/organizational aspects of extension may require research to answer operationally significant questions for extension to become effective.

2. WHAT TO EXTEND

What specific research questions will arise in trying to decide what to extend will vary from setting to setting. Some of the most prominent considerations for any situation are highlighted here.

Choosing the Right Tree for the Job

No forestry or agroforestry extension can occur without trees, but choosing the right tree for a particular role in community forestry is rarely approached with systematic attention. The project record abounds with examples of projects that have foundered because of inappropriate species choice. A recent review of the literature for a publication in preparation (Raintree, forthcoming) reveals how few social forestry project documents ever provide any systematic rationale whatsoever for the matching of tree species to the needs of the target community!

This appalling lack of systematic planning is a holdover from the era of a less demanding industrial forestry when it was commonplace and acceptable to assume that one or another of a handful of exotics commonly used in tropical plantation forestry would be appropriate. No community forester really believes that this approach is sufficient today, but the standards of project documentation and accountability have yet to adjust. Even more important than considerations of physical site matching, the primary question in choice of tree species is what function within the local community or land use system the tree is expected to perform. Of course, one tree may perform multiple functions and, by the same token, several different trees may be required to fulfill all of the functional needs of different users within the community. Riding the wave of funding for "energy crisis" issues, most community forestry projects to date have been planned with fuelwood as the primary objective, but the project evaluation literature points out time and again that fuelwood is rarely the first or only priority of rural people. Fruit trees, fodder, medicinal trees or poles for cash often take precedence.

In view of the track record, it is high time to insist that more systematic procedures for the selection of trees species become standard practice in project planning. This begins with an awareness of the range of roles that trees can and do play in rural communities (see Burley 1983 for a "list of lists" of multipurpose tree species and uses). The classification of tree functions in terms of basic human needs in Table 1 provides a useful checklist and a convenient starting point for identifying potential tree functions in a given locality.

The actual roles played by particular trees in a given locality will reflect some unique subset of the potential functions. An awareness of the potential roles of trees may help the extension forester assist the local community in identifying suitable tree species to fulfill needed functions, but close attention is needed to the particular characteristics of trees which make them suitable for a particular function in the eyes of the local user. For example, fast-growing, straight-boled pole trees may have good value in urban markets but are irrelevant to the Malawian farmer's need for "Y" shaped posts to construct granaries.

Table 1 Potential role of trees and shrubs in supplying basic human needs.
(Source: Raintree 1987a)

FOOD

1. Human food from trees (fruits, nuts, leaves, cereal substitutes, etc.).
2. Livestock feed from trees (one step down the trophic chain).
3. Fertiliser from trees for improving the nutritional status of associated food and feed crops through a) nitrogen fixation, b) access to greater volume of soil nutrients through deep rooting trees, c) improved availability of nutrients associated with higher CEC and organic matter levels.
4. Soil and water conservation effected by runoff and erosion controlling arrangements of trees in farming systems (indirect benefits through enhanced sustainability of cropping systems).
5. Microclimate amelioration associated with properly designed arrangements of trees (e.g. shelterbelts, dispersed shade trees) in crop and grazing lands (indirect production benefits).

WATER

1. Improvement of soil moisture retention in rainfed cropping systems and pastures through improved soil structure and microclimatic effects of trees.
2. Regulation of streamflow for reduction of flood hazard and more even supply of water through reduction of runoff and improvement of interception and storage in infiltration galleries through various watershed protection practices involving trees.
3. Protection of irrigation works by hedgerows of trees.
4. Improvement of drainage from waterlogged or saline soils by deep-rooted trees that obtain water from the water table.
5. Increased biomass storage of water for animal consumption in forage and fodder trees (higher water content of tree fodder in dry season).

(Table 1, continued)

ENERGY

1. Firewood for direct combustion.
2. Pyrolytic conversion products (charcoal, oil, gas).
3. Producer gas from wood or charcoal feedstocks.
4. Ethanol from fermentation of high carbohydrate fruits.
5. Methanol from destructive distillation or catalytic synthesis processes using woody feedstocks.
6. Oils, latex, other combustible saps and resins.
7. Augmentation of wind power using appropriate tree arrangements to create venturi effects.

SHELTER

1. Building materials for shelter construction.
2. Shade trees for humans, livestock and shade-loving crops.
3. Windbreaks and shelterbelts for protection of settlements, croplands, pastures and roadways.
4. Fencing (living fences, fence posts, cut brush fences, etc.).

RAW MATERIALS FOR LOCAL PROCESSING/SMALL SCALE RURAL INDUSTRIES

1. Wood for a variety of craft purposes.
2. Fiber for weaving industries.
3. Fruits, nuts, etc. for drying or other processing industries.
4. Tannins, essential oils, medicinal ingredients, etc.

CASH

1. Direct cash benefits from sale of tree products.
 2. Indirect cash benefits from productivity increases (or input savings).
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To cite another example, the development of an early maturing dwarf coconut had a disappointing response from farmers in Indonesia who, due to limited land availability, must grow their coconuts in complex multistorey home-gardens rather than monocultural plantations. Rather than occupying its traditional place in the upper storey of the canopy the short-statured coconut competed with bananas for space and were subject to increased theft. Moreover, early maturing proved less important to the farmer than the longer bearing period before replanting of the traditional variety.

Other criteria of "appropriateness" which may be totally unsuspected by the outside expert are encoded in local linguistic traditions and indigenous plant classification systems. For example, in Senegal some plants are classified as "brothers", meaning that they foster each other's growth, while others are classified as "co-wives", meaning that they inhibit each other's growth. Among the Bhil ethnic group in India, where polygyny has a different social meaning, "co-wives" are plants that grow well together (Hoskins 1987). The "sausage tree" (*Kigelia africana*) is valued by the Wakamba of eastern Kenya as the source of an essential ingredient for beer brewing, while among the Luo in western Kenya, where the sausage-shaped fruit is used in funeral rites as a substitute for the body of a relative who met a violent death in a distant place and whose body could not therefore be recovered, the tree is devoid of positive meaning. All through the ages and in every land, trees have been considered fit receptacles for all manner of symbolism. Awareness of local symbolism may sometimes be a prerequisite for successful species choice.

It Takes More than Trees: the Right Tree Planting Technology

In any case, an appropriate tree planting practice involves more than just trees. The appropriateness of a particular tree species or variety is embedded in a whole set of implicit decisions about other aspects of tree technology: 1) the role of trees in an overall development strategy, 2) the specific function(s) the trees are to perform for different users within the community, 3) the location within the landscape at which they are to be planted, 4) the particular spatial arrangement of the trees (alone or in combination with other plants), and 5) the management regime under which the trees are to be raised and utilized. In choosing a tree to plant, these decisions may not always be explicitly considered either by the farmer or the extensionist, but some decision on each of these questions, however unconscious, is implicit in any act of tree planting. To minimise unintended impacts and to sharpen the focus of particular extension interventions, it behoves the extension worker to try to deal with these decisions in a conscious and systematic way.

The most important source of clues to the nature of an adoptable tree technology is an awareness of existing tree planting practices in the locality. In many cases, the most important intervention the extension worker can make is to identify and understand what positive initiatives farmers are already taking and to find ways to support and strengthen them. Providing that the innovators are not grossly unrepresentative of the majority of land users in the area, the extension agent may only need to organize a programme of "sideways extension" (Richards 1985) to promote an appropriate tree planting technology within the community.

In many cases, however, it will be necessary to go beyond even the most innovative of existing practices to realize the full potential of tree technologies in solving local environmental and development problems. To answer the need for a systematic approach to such complex design problems, ICRAF has developed a Diagnostic and Design (D&D) methodology. Various D&D guidelines and resource materials have been developed to facilitate the application of this approach at micro, meso and macro scales (see Raintree 1987 for a recent state-of-the-art review; see also Huria and Achaya 1983 and Hardcastle 1987 for comparable "microplanning" approaches in community forestry). Drawing on the D&D methodology, Table 2 illustrates the kinds of information that can be mobilized to support a systematic approach to the design of extension interventions. Not all tree planting activities will require this kind of precision, but most will benefit from it.

Table 3, p.33-35, presents a synopsis of a selection of typical results from rapid appraisal applications of ICRAF's diagnostic and design methodology in order to identify priorities for research in a range of different land use situations throughout the tropics. There are broad similarities between the recommendations for similar climate zones and land use systems, but each particular set of diagnosed problems and agroforestry potentials is unique, and each technology requires a detailed site-specific design.

It is obvious from Table 3 that different land users have different needs and different potentials for adoption of new tree-based technologies. With the exception of Peru and Malaysia, the D&D applications summarized in the table were focused from the start on what would be considered resource poor farmers by any global standard. But the case studies also illustrate how relative this term is. In most of the case study localities the client group was fairly homogenous, sharing a common set of problems and potentials, except in Karnataka. Here, under conditions of extreme social stratification, the D&D team found it essential to distinguish between resource-rich (RR) and resource-poor (RP) farmers. Farm sizes in Karnataka are highly skewed, but 3/4 of the farms are under 4 ha. The classification "resource poor" thus was reserved for landless labourers and marginal farmers (<1 ha) with no bullocks. There was no way that these farmers could enjoy equitable participation in the benefits of agroforestry innovations on private land, so the main intervention became multipurpose tree groves for a variety of subsistence needs on communal lands.

This is what critics of eucalyptus planting in this part of India have said should be done for the resource poor farmers of the area by the social forestry programme (Shiva et al. 1982). The real issue in the continuing "eucalyptus controversy" in India seems to be not about ecological effects (Poore and Fries 1985), but about the negative social impacts of a farm forestry programme that makes the "rich" richer and the poor poorer. But again, how relative these categories are! It may be true that in some cases wealthy landowners have benefited more than they deserve from the subsidies of the programme, but the great majority of the adopters and beneficiaries of the eucalyptus scheme would be considered "resource poor" farmers in other parts of the world.

Table 2. Site specific design algorithm for agroforestry interventions.

DESIGN DECISIONS	QUESTIONS & SOURCES OF INFORMATION	
	External knowledge base	Diagnostic survey
Development strategy	What kinds and rate of change is this type of system able to absorb? What is the optimal pathway of intensification?	What is the best overall development strategy for the system? (incremental improvement vs. complete transformation; phased approach to introduction of changes)
What <i>problems</i> and <i>potentials</i> should the design address?	What are the typical problems and potentials of this type of system at its present stage of development?	What are the actual problems and potentials of the system? (How do local people normally cope with these problems?)
What <i>functions</i> should the design perform?	What functional needs and constraints are typical of such systems?	What are the actual <i>functional needs</i> of the system? (as perceived by both farmers and researchers)
Which functions should be performed <i>separately</i> & which in <i>combination</i> ?	What are the needs and possibilities for functional combinations in such systems?	How does the land user perceive the relative advantages of different possibilities?
At what <i>locations</i> within the landscape should these functions be performed?	What landscape niches are usually found in such systems?	What landscape niches are actually available, which offer the best choice, what are the land user's preferences?
What species <i>components</i> or component combinations are best used to perform the desired functions?	What exotic components are thought be suitable for these functions in this environment?	What indigenous components could perform these functions? (local ethnobotanical knowledge)
<i>How many</i> of each are required to achieve the objectives of the design?	What is the expected yield of the chosen components in this environment? (If for service role, how much impact are they likely to have?)	Is it possible to fit the required number of components into the available spaces? (If not, how can the supply gap be filled? Review local strategies for coping with supply shortages and other problems to suggest additional approaches.)
What <i>precise arrangement</i> of the plant and animal components is envisaged?	What <i>arrangements</i> are possible? (simultaneously in space and/or sequentially in time)	Which <i>arrangements</i> are preferred by the land users?
What <i>management practices</i> are envisaged to achieve the performance objectives	What are the management options?	Which management options are preferable to local land users? (check compatibility with local skills, availability of labour and other inputs)

It appears that the real problem with the strategy is not that it introduced a widely adopted cash crop grown as a raw material for the urban pulp and rayon industries of the region (which, incidentally, provide employment for urban workers), but that it failed to address the needs of the poorest of the poor -- i.e. those who were unable to participate in the farm forestry programme because they simply didn't have the land, but would have benefited greatly from multipurpose plantations on communal land.

An adequate understanding of the various categories of land users within the target area, their differing needs and opportunities, their access to and control of resources -- all those things that affect their ability to adopt and to benefit from forestry/agroforestry innovations -- is essential to a successful extension programme. There is no substitute for the "user perspective" in the design of extension innovations (Rocheleau 1987a). In the Karnataka case, land tenure (the special case of landlessness) was the main factor differentiating the non-adopters from the adopters. Numerous other aspects of tenure issues in forestry and agroforestry projects have been brought to light recently by an international workshop on tenure issues in agroforestry (Raintree 1987c).

Gender is another common determinant of ability to adopt and benefit from tree-based innovations (FAO 1982, 1987a, Hoskins 1980, 1983, Fortmann and Rocheleau 1984, Rocheleau 1987b). Certain agroforestry practices (e.g. homegardens) have special promise for women. Others (e.g. cash crop trees normally thought of as men's property in Africa) may be a formula for increased female labour burdens without benefits. To obtain relevant information on this critical aspect of technology choice it may be essential to have women researchers and extensionists on the team.

Table 3. Examples of diagnosed problems and matching agroforestry potentials for different types of land use systems in the tropics.

HUMID LOWLANDS	CACAO-FOOD CROPS SYSTEM
BUSH FALLOW	CAMEROON

PROBLEMS: Constraints to intensification of food production: declining soil fertility due to shortening fallows; acid soils, aluminium toxicity, vulnerable to erosion, leaching, structural degradation once the vegetative cover is removed; weed problems increased with shortened fallows. Labour shortage for clearing (a cause of shortened fallows where land is not scarce) and weeding (a consequence of shortened fallows). Competition for male labour for clearing from labour-intensive cacao. Underdeveloped homegardens (few plants, lack of diversity), hazard from free-ranging smallstock; labour constraint on gathering of distant forest products argues for domestication in homegarden. Cacao production suffers from poor shade, competition for land with food crops, labour shortage for more intensive management.

AF POTENTIALS: Selective clearing of forest (preserving useful species and shade trees for cacao). Enriched fallows (both biologically accelerated and economically enriched). Rotational hedgerow intercropping going eventually to permanent hedgerow intercropping. Mixed intercropping. Live staking

for non climbing crop. Labour-saving tools. Fodder banks (cut-and-carry) and live fences for smallstock in homestead area. Multistorey homegardens. Enrichment of cacao plantations with leguminous shade trees, fruit trees and other MPTs, shade tolerant understorey crops, fertility enhancing ground cover; introduction of labour-saving tools.

HUMID LOWLANDS
RANCHING

PUCALLPA PIONEER CATTLE
PERU

PROBLEMS: Lack of capital for hiring of labour for land clearance, purchase of cattle for rapid herd buildup, fencing for improved grazing management. Low pasture productivity due to low native soil fertility after clearance; high erosion risk in steep pasture land.

AF POTENTIALS: Low input grass/legume mixtures following clearing or first cropping (as initial step). Silvopastoral system of alternate strips of timber trees and pastures along contour lines with living fences of vegetatively propagated fodder trees to protect young timber trees and compensate for reduced grazing--for erosion control, more efficient rotational grazing management in paddocks created by the strips, and cash income from sale of timber trees. Ley (shrub legume/grass) systems. Living fences for rotational grazing.

HUMID LOWLANDS
FOREST RESERVE

BATU ARANG FOREST RESERVE
MALAYSIA

PROBLEMS: Projected national timber deficit around year 2000. Budgetary constraints on plantation forestry, illegal encroachment on forest reserve by individual farmers in search of land for expanded cash crop production (most of the encroaching farmers are not landless). Inadequate income of encroaching farmers from farm enterprises on own land.

AF POTENTIALS: Mixed intercropping of timber trees with agricultural crops followed by silvopastoral sheep grazing on improved pasture under trees (agrosilvopastoral). Zonal intercropping of strips of timber trees, fodder trees and agricultural cash crops followed by strips of timber trees and sheep pasture (agrosilvopastoral).

SUBHUMID HIGHLANDS
MIXED FARMING

COFFEE BASED SYSTEM
KENYA

PROBLEMS: Inadequate cash income. Shortages of fuelwood, poles and saw wood. Erosion and declining fertility in cropland and coffee plots. Lack of mulch material for coffee. Shortage and poor quality of fodder. Labour shortage. Soil moisture deficit in dry season. Hail damage. Lack of planting material for MPTs.

AF POTENTIALS: For the coffee plot: hedgerow intercropping, mixed intercropping with high value MPTs, mixed intercropping with food crops. For the food crops plot: hedgerow intercropping, mixed intercropping with high value trees. Multistrata homegarden. Intensive fodder banks (high input with dairy, coffee/tree intercrop system). Boundary planting, high density woodlots. Trees on grass strips to stabilize river banks and for fodder and wood products.

(Table 3, continued)

SUBHUMID HIGHLAND BUSH/FOREST FALLOW	TOBACCO-CEREAL (TABORA) TANZANIA
<p>PROBLEMS: Serious and growing fuelwood shortage for flue curing of tobacco. Deforestation associated with immigration to this frontier area. Declining soil fertility due to shortening fallow periods associated with increasing population density. Nematode problems in tobacco associated with lack of land for adequate fallow to break nematode cycle.</p>	
<p>AF POTENTIALS: Enriched fallow for fertility, fuelwood, poles. Woodlots for fuelwood (mainly for tobacco curing), poles. Selective clearing for conservation of miombo woodland resources. Mixed intercropping for fertility, fuelwood, poles, fodder. Hedgerow intercropping for fertility, fuelwood, poles, fodder (rotational alley cropping if combined with enriched fallow intervention). Interstitial planting of domestic & industrial tree crops for subsistence, cash and local processing industries.</p>	
SEMIARID LOWLANDS MIXED FARMING	BIJAPUR (KARNATAKA) INDIA
<p>PROBLEMS: Resource poor land users (RP): Inadequate food, shelter and cash due to low income from wage earning (irregular employment, under-employment, low wages). Medium to "rich" land users (RR): Lack of development potential due to lack of cash for savings, lack of investment opportunities, insecure crop production due to erratic rainfall. Causal factors common to both groups: poor livestock production (few animals due to shortages of land, labour and fodder; low production per animal due to shortage and poor quality of fodder, especially in dry season; poor marketing); low yield of cropping systems due to low soil moisture (low/erratic rainfall, high run off, poor infiltration on deep black soils, low WHC on shallow black soils, excessive evapotranspiration due to wind, late planting and weeding due to lack of bullocks and labour); low and declining soil fertility (low inherent fertility, continuous cropping, erosion, inadequate nutrient input, weed competition); physical damage to plants due to erosion and poor drainage. Shortage of poles and timber.</p>	
<p>AF POTENTIALS: For RP land users: Multipurpose groves on common land for community gathering of fruits and other subsistence needs. For RR (and RP land users with access to credit and opportunity to participate in land allocation schemes): Trees on bunds of rainfed fields for timber, fruit, fodder and soil fertility for cash and subsistence uses. Rotational woodlots (fallows) for fertility, fuel, fodder and timber. Hedgerow intercropping for fodder, fuelwood, and fertility. Other agrisilvicultural systems. Silvopastoral systems for tree products with grazing. For whole community: Large-scale shelterbelts.</p>	

Combining Structured Inputs with Open-ended Participation: the Essential Complementarity

Having argued that a systematic approach to "designed interventions" is needed to realize the full potential of agroforestry, we must now hasten to add an important caveat: in most cases it will not be enough. An essential complement to a designed approach is a more open-ended unguided approach, which is needed to bring out viable alternatives to designed interventions. In addition to the trial of externally generated designs, an active but less structured "a la carte" approach to the introduction of candidate tree species (preselected for relevance to diagnosed needs) is also needed.

To maximize the impact of both externally designed or locally originated innovations it is necessary to follow up on all tree planting activities with sufficient monitoring and evaluation to identify the truly successful techniques, and then to feed this information back to the community through extension channels.

It Takes More than an Appropriate Tree Technology: Organizational Innovations

The assumption that an appropriate technology will automatically diffuse throughout its natural recommendation domain is rarely borne out in practice. It took American farmers in the corn belt 9 years to adopt hybrid maize -- and that was with exceptionally good extension of a relatively simple and (in retrospect) obviously appropriate technology. How much slower and fraught with uncertainties will the adoption of complex agroforestry systems be in developing countries? Even simpler forms of tree planting have little chance of succeeding under the harsh conditions of "problem areas" without proper organizational support for the extension and adoption process. Of what use is appropriate tree technology without the organizational means to disseminate it?

Inadequate attention to the organization of extension activities, again, is particularly problematic in the case of agroforestry. Because of the relative newness of agroforestry as an organized field, research concerns have tended to dominate the scene and little attention has thus far been given to extension aspects. However, as a representative of a donor agency supporting agroforestry research has recently commented concerning the "vexed question of agroforestry extension:"

We seem to be creating this complex superstructure of agroforestry research (journals, volumes, conferences, etc.,etc.), whereas what little trickles down is hardly distinguishable from old-fashioned tree planting or range management..... There must be a balance between the amount of intellectual energy that goes into agroforestry research and what comes out at the other end. That is why, [we] cannot ignore what happens at the extension/adoption end (Zimmerman 1987).

If agroforestry research efforts are to pay off, extension programmes must be organized and staffed with workers trained to handle not just the simpler forms of tree planting but also the systematic aspects of land management that are receiving so much attention from agroforestry researchers. Beyond that, to get these technologies off the drawing boards and into the landscape, agroforestry extensionists must also deal with the systemic aspects of local social organizations. The ability to identify and strengthen local organizations in order to bring the innovations to the attention of all sectors of the community and to support their implementation and trial on a group or individual basis is more important for agroforestry than for either annual crop production or more conventional forms of block forest management.

The decision of whether to work directly with individuals or with groups or with some mix of the two will depend not only on the resources of the extension agency, but also on the possibilities presented by the community. Rather than impose foreign organizational forms, it will usually be far more effective to identify and work with indigenous institutions. For example, the traditional "age set" and territorial institutions among the Maasai might have provided a better organizational basis for failing group ranch schemes based on modern "management committees" that were selected without regard for traditional patterns of community mobilization and decision making (B.E. Grandin, personal communication). Traditional funeral groups among the Luo (often called "women's groups" in current project terminology, although they are of mixed gender composition) have provided a strong indigenous basis for the neighborhood nursery groups behind the tree planting activities of the CARE Agroforestry Extension Project in Siaya District, Western Kenya.

Based on a group process model first explored in ICRAF's Kathama project (Rocheleau and Vonk 1983, Rocheleau 1984, 1985), the CARE project has achieved some spectacular successes. In the first three years of this project the number of participating groups grew, almost faster than the project staff could keep up with, from 7 to over 400. As a result of the economies of scale associated with a focus on neighborhood nursery groups rather than individual farmers, the project was able to provide direct extension inputs to an impressive 10 percent of the population of the district in three years. During the long rains of the third year, more than 1.5 million seedlings were planted on farms of the group members in various agroforestry spatial arrangements -- all in a single planting season! (Remko Vonk, personal communication).

That's the kind of organization that makes things happen. Also needed is the kind of organization that "lets things happen". Chandrasekharan (1985) distinguishes between active and passive participation in tree planting. The latter includes changes in habits necessary to allow other people to grow trees. Since the planting of trees may commit the land to a relatively fixed long term use, diminish or curtail traditional community rights to alternative uses (e.g. seasonal grazing during the establishment period of the trees), tree-based land use systems may need to be accepted by the entire community. This may require bold "action research" in order to develop and negotiate an acceptable community-wide plan.

Similar undertakings at the national level may be required to bring policies in line with requirements for successful extension (Scherr 1978). Removing government hindrances to the harvesting of trees planted on one's own land (proscribed because all trees of certain species are considered "common property" and automatically protected by rigid access codes) is high on the agenda of policy changes needed for more effective extension in some countries (Thomson 1987). Action research can play a key role in identifying and overcoming constraints such as lack of adequate marketing infrastructure; poor terms of access to credit, land or water; restrictive rules governing the division of labour by sex, age or wealth class; lack of a forum for land use planning and resource management decisions at the local level; lack of social mechanisms to enforce group decisions; and lack of access to decision-making bodies relevant to the adoption of promising innovations (Rocheleau and Raintree 1986).

Attention to the end-use linkages of community forestry and agroforestry production systems is particularly promising in areas where the local population is at or near the carrying capacity of primary agricultural production activities, and where the only way to support further population growth is to develop new employment opportunities in rural industry. Recent studies of forest-based small scale enterprises (FAO 1987) have revealed that these secondary processing activities are among the top three employers of rural people in the countries studied -- and this is without counting small scale agro-industrial enterprises which might fall within the scope of improved agroforestry production systems. The potential for agroforestry production of raw materials is especially significant in view of the scarcity of raw materials as one of the most serious constraints on the productivity of forest-based rural industries.

Market linkages are a related area of concern. A large number of tree planting projects have assumed that fuelwood and pole products would be readily absorbed by the market. Many of these have not been based on realistic market assessments, but rather on the assumption that communities facing shortages of these commodities will automatically turn to purchased supplies. In practice, people often shift to alternative materials, such as agricultural residues for fuel. Overproduction of a single fruit crop without adequate market development is also common. As a result, the incorporation of trees into farming systems for cash income has sometimes produced disappointing results. However, when adequate market research followed by development of adequate marketing infrastructure offers reliable incentives, and when middlemen do not absorb more than their fair share of the profits, tree planting activities may be expected to expand well beyond the modest levels required for subsistence purposes. Care needs to be taken, however, to avoid activating the pattern of poorly distributed benefits which turned the economic "success" of eucalyptus planting in India into a notorious social "failure".

3. HOW TO EXTEND IT?

How can extensionists carry out their work if, as the foregoing review of information needs suggests, there are so many research questions implicit in even coming to an decision on what to extend? This is one of the questions we would like to raise for general discussion. We don't have a magic formula for success, but we would like to entertain a proposal for operationalizing within an extension service a capability to answer most of the research needs suggested by the foregoing analysis, while interfacing more effectively with formal research institutions on others.

The Need for a New Model!

It is obvious that the research needs of extension will never be satisfied from within an extension service still dominated by a unidirectional pattern of information flow, reflecting the implicit notion that the extensionist "has all the answers". This is patently not the case, but why must the extension service get involved in "research"? Why can't extensionists simply rely on the formal research infrastructure? In our view the inadequacies of formal research institutions may be less obvious but are no less debilitating than those of extension services. Let us take the best case scenario to illustrate the problem. Suppose forestry extension services were to be supported by a research infrastructure which used an adapted "Farming Systems" approach, similar to what many national agricultural research systems have now adopted.

One inadequacy of such an approach is immediately obvious to anyone familiar with the existing institutionalization of FSR. With a few rare exceptions, "research" is almost never thought of as referring to anything outside a very narrow band of biotechnical experimentation. The socio-economic dimensions of technology development may be taken up, but usually only in a service capacity and not as a proper "research" subject in their own right, and the organizational aspects of extension are almost never considered at all within the formal research structures. These are thought of, if they are thought of at all, simply as "externalities" over which the researcher has no control, and no really legitimate institutional interest.

As serious as this self-imposed blindness to the social side of research and development might be, the real weakness of most FSR programmes is the approach to technology generation. In FSR, researchers consult with farmers to know their problems. Research is then undertaken to generate the information needed to solve these problems. However, as long as the research is conducted by distant researchers who only visit the community at infrequent intervals and whose primary orientation is to the world of the research station, there remains a strong temptation to leave "problem-solving" on the back burner while pursuing an endless succession of interesting research questions (not to mention publishable results).

Under the old transfer of technology (TOT) paradigm -- still with us wherever T&V or other "top down" approaches still dominate the extension scene -- "research" inevitably comes before "extension". However, in the emerging farmer participatory paradigm (FPR) (Chambers and Jiggins 1986, Farrington and Martin 1987), research-like activities tend to overlap with extension-like activities. This has taken different forms in different institutional settings: "on-farm" and "adaptive research" in research institutions using the Farming Systems Research (FSR) approach, informal "extension trials" undertaken by some extension agencies and development authorities, and the new prominence accorded to on-going, internal "monitoring and evaluation" activities in community forestry projects. All of these are examples of a partial blurring of the old, hard-and-fast distinction between research and extension and a striving toward a new synthesis.

If we abstract what is common to the most progressive examples of the trend toward improved research and extension methodologies, and if we arrange the essential elements of each along a continuum and then juxtapose these two idealizations, the gap does not seem impossibly wide.

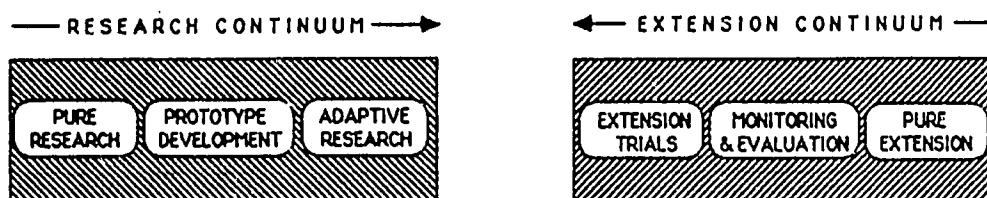


Figure 1 Research and extension, both striving toward a common ground. At the closest point they are really quite similar, but still they don't meet.

Extension R&D: A Community-based Synthesis

What is needed, really, is a three way synthesis of research with extension and both of these with the other center of research and development: the local communities themselves. To meet this need we propose what appears in Figure 2.

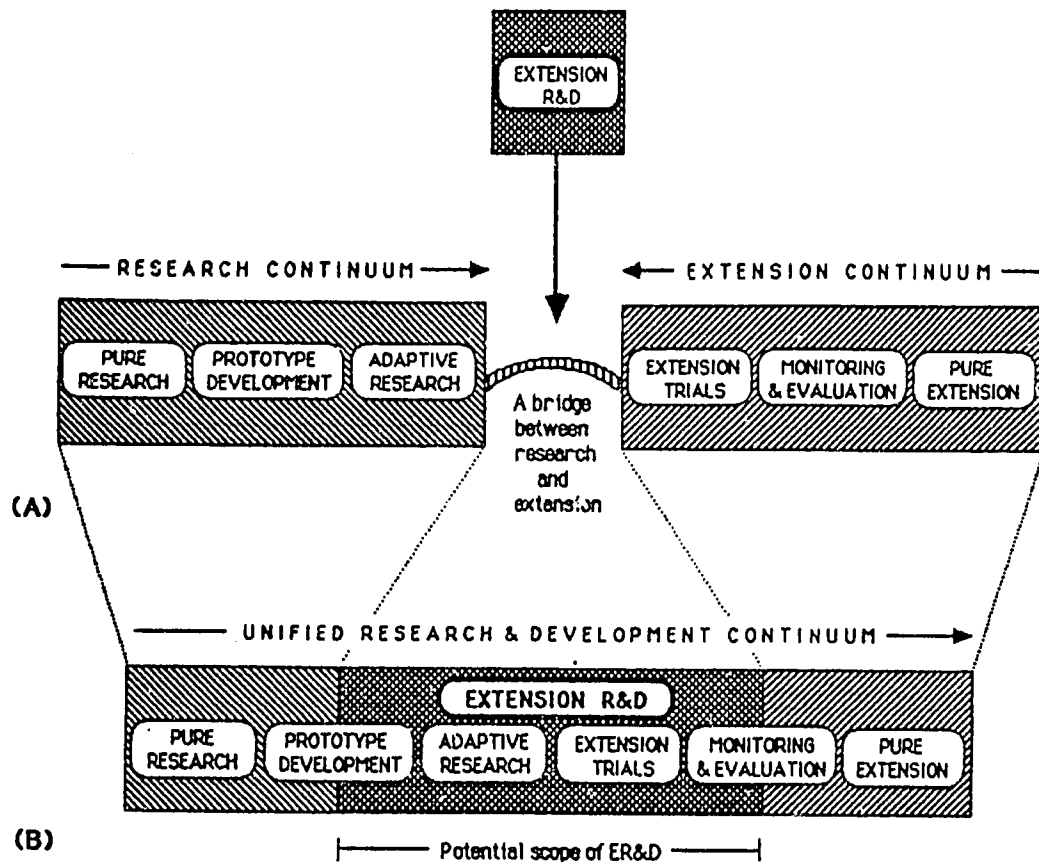


Figure 2 Extension R&D: the missing link between research and extension. As an informal, community-based approach to research, and as a model for two-way communication in extension, "ER&D" bridges the gap between researchers, extensionists and local people.

ICRAF's D&D methodology is an FSR type approach explicitly developed to be sensitive to the tree components of farming systems, a curious blind spot in most FSR methodologies. In D&D, which is a little more explicit about design than other FSR approaches, it is the attempt to design an appropriate agroforestry system for a given set of diagnosed conditions that exposes knowledge gaps and defines the research questions. After research has generated better information, one then returns to the design step to re-design an improved technology on the basis of better knowledge, and so on iteratively. This way of nesting the research questions within the technology design questions is the way D&D attempts, in principle, to keep research relevant to technology generation and technology generation to rural development.

Unfortunately, in practice this strategy has been only partly successful in the research context. Typically, it has been the "systems" oriented people (often social scientists) who are most concerned with design in this client-oriented sense. Unfortunately, their knowledge of the "nuts-and-bolts" of component technology may not always be sufficient to do the job efficiently, and yet the research people with technical training don't always share the orientation toward design. Why? Because, generally speaking, agricultural and forestry researchers are not trained to be designers. The cognitive styles associated with creative design are either foreign to them or totally overshadowed by their dedication to rigorous but limited modes of statistical and experimental inference. Left to themselves, most researchers are more interested in conducting experiments than in designing technologies. As a result, a lot of relevant technologies might get researched but never designed. When we compare this with the way things are done in industry, the lack of a design orientation in agricultural research is revealed as an anomaly which diminishes the ability of agricultural researchers to solve problems for their clients, or even to acknowledge that the farmers are their main clients.

Within industrial practice, a distinction is made between the normal professionalism of output-oriented science and client oriented technology development. In industry, client-oriented professionals are educated and trained to a much greater degree for market research and user-participation in research, and use methods which encourage professional responsiveness to user concerns. Agricultural science, in contrast, is output-oriented rather than client-oriented; scientists develop the product and extension has to sell it (Chambers and Jiggins 1986).

What is missing in agriculture and forestry, between research and extension, is the whole engineering step. If we had anything analogous to a general purpose engineer in agriculture (not just the agricultural machinery boys, but people whose main interest and competence is in biological design), we wouldn't have needed all that "Farming Systems" stuff. This gap is particularly evident in agroforestry, where the design problem is far from trivial and client input is essential.

Methodologically, the idea of Extension R&D (ER&D) is founded on the near equivalence of what FSR researchers call adaptive research and what extensionists call extension trials. They are so close, in operational terms, that they can be both done in the same place at the same time by the same staff, with only a slight shift in purpose to differentiate them. Operationally, ER&D depends on the catalytic role of the ER&D fieldworker,

a community based change agent -- a role model for combining the traditionally separate roles of researcher and change agent by doing the R&D in the community and partly as an extension exercise. Ultimately, what is extended is not only a particular set of technology packages, but also a creative and self-reliant approach to problem solving by the local community itself. In contrast to the institutionally oriented role of the formal sector researcher or extension agent, the ER&D agent's primary orientation is toward the local community and his/her role is essentially that of an informational catalyst.

From the research point of view, what is envisaged is a complementary relationship between two kinds of research professionals, one for each of the two centers of agroforestry research and development: 1) the institutionally-based researcher with a classical research orientation, modified somewhat by an FSR type liaison with the rural community (e.g. D&D as practiced by researchers), and 2) the community-based researcher/change agent with a much more applied orientation, informed by the psychological attitudes and cognitives styles of "exploratory" rather than "proving" behavior, and capable of playing the dual role of technology development catalyst within the community and information broker between the community and externally based researchers.

In the envisaged collaboration between the two types of researchers, the focus of the community-based researcher would be on:

- adaptive research and extension trials, to adapt and improve upon researcher-originated technologies for a better fit with local conditions
- exploratory research, to explore and develop new prototype technologies
- action research to identify and catalyze the development of needed organizational structures, supportive infrastructures and policies

Community-based ER&D teams, composed of the ER&D change agent and his local co-workers, are likely to be the best sources of relevant prototype designs, but most prototype technologies arising from this source could probably be improved significantly by a formal research effort to screen for improved germplasm and to generate hard experimental data on basic processes and interactions within the system, as needed to optimize the technology to meet the diagnostically derived specifications of the site.

In contrast to the station-based researcher who might tend to lose sight of the problems his research was originally intended to solve, the ER&D agent is in constant contact with the problems which stimulated the research in the first place and is primarily concerned with arriving at a solution. As a researcher based primarily in the field, he may not be in a position to carry out some of the more fundamental research that might be needed for a breakthrough, but he is in a much better position to apply the results of such research to the design problem per se. This is particularly relevant in agroforestry where uncommon flexibility and attention to detail are often needed to realize the benefits of a wide range of agroforestry functions for different user groups in varied landscape niches within the local community (Rocheleau and Raintree 1986).

As a change agent, the role of the ER&D agent would be to catalyze the local development, adaptation and/or adoption of appropriate technologies. This would be done by coordinating community access to potentially useful information within the international network and by stimulating the creative processes within the community by which useful exogenous information is combined with indigenous technical knowledge and extended into new adaptive domains. In contrast to the classical extension agent, the ER&D agent would often be engaged with the farmers in exploring explicitly experimental technologies. As a member (and often the organizer) of a community-based R&D team, the ER&D change agent would function not as the messenger of a distant bureaucracy, but as an internal catalyst in a system of cross-fertilizing information flows. What is extended is not just a particular technical package, but a self-reliant, participatory approach to problem solving in general.

Questions of Institutionalization

Although it remains to be seen how this model could be institutionalized in particular countries, it is potentially a very cost-effective approach. It could be tried on an experimental basis almost immediately in small pilot projects, designed not to replace existing research and extension procedures, but to complement them (part "A" of Figure 2). The idea would be to start small and let the ER&D unit prove its value in establishing bi-directional communication channels between conventional researchers, extensionists and farmers. Later, if the pilot project proved successful, the unit could be encouraged to expand to incorporate more extension staff and take over more of the previously "marginal" activities (adaptive research and extension trials) of the parent agencies -- which by now have been established as central to the ER&D paradigm (part "B" of Figure 2).

It is not envisaged that an ER&D unit would ever attempt to completely replace classical research and extension activities. Rather, the ER&D unit might be thought of as a special extension unit, a highly trained cadre of field workers whose energies are reserved for the most intractable cases--those that have proven difficult to solve by conventional means. Much of what is now being taken up under the heading of priority agroforestry research is in this category. Unfortunately, lacking an effective linkage with extension, most of these research projects are starting out with a severe handicap. As an institutional strategy it seems better to locate the special unit within the extension camp and let extension, which is inherently closer to the ultimate clients, articulate research needs from a design perspective.

Training Needs

The effort to tackle the design problems and potentials of agroforestry within community forestry extension programmes provides a unique opportunity to upgrade the role of the extensionist from "salesman" to "engineer" (or perhaps, as in modern technical business enterprises, to "sales engineer"). Upgrading the technical skills of extension foresters to be able to deal with systemic aspects of land use is an urgent requirement in any case. Moreover, given the unquestionably experimental nature of

many agroforestry technologies, virtually any programme to extend agroforestry practices must involve a research component. While training extension agents for enhanced technical skills and adaptive research capabilities, why not also upgrade their communication skills and train them also in the methodologies of Extension R&D?

The most critical need is to equip these new professionals with the skills required to stimulate needed local innovation and to facilitate active two-way communication between farmers, researchers and extensionists.

To our knowledge, the only organization on the agroforestry scene today that has attempted anything like this kind of training of extension workers is CARE International. CARE is in the process of preparing an Agroforestry Extension Training Sourcebook (Buck in preparation) which includes training modules on agroforestry diagnosis and design and on "communication for agroforestry development". Partly as a result of a long collaboration with ICRAF in Kenya CARE is well qualified to train extension workers in D&D methods. For communication skills, the new training sourcebook covers such topics as role play, facilitated discussion and adult learning theory, with supporting exercises on such tantalizing titles as "hierarchy hinders", "breaking down barriers", "message distortion", "eye contact and feedback", "one track minds", "active listening", and "project communication nodes".

The aim of an innovative training programme along these lines should be to create a new type of development professional (Chambers 1983) whose home ground is located squarely in the middle of the design problem, i.e. a pragmatic, culturally sensitive, client-oriented, technologist-cum-community development specialist. We need someone who knows how to get the best out of conventional researchers (both biological and social), but whose primary interest and aptitude is for village level R&D and whose main clients and collaborators are the ultimate users of the technology, the rural people themselves. We don't need many of these new professionals, perhaps, but we do need them.

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RAPID RURAL APPRAISAL IN FORESTRY EXTENSION

1

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Introduction

Rapid Rural Appraisal is a rural research methodology that has emerged and been refined over the past ten years in response to a serious concern that development planners and practitioners were very much in need of methods that would provide timely and accurate information, at appropriate levels of precision, in a cost-effective manner (Chambers 1987). Many development projects suffered because they were planned and implemented before important topics, issues, and conditions in target rural areas were sufficiently understood. This seems to have frequently occurred for two reasons (Chambers 1987). On the one hand, the research methods being used were often too costly, time-consuming, complex, inflexible, sought unrealistic and unneeded levels of precision, or were sometimes inappropriate to the subject matter or context of the research (Stone and Campbell 1984). On the other hand, information that was being obtained in a timely but unscientific manner by development professionals usually suffered from serious biases that reduced the quality of the information (Chambers 1987). For these reasons, methods that were both accurate and timely were sought, and as such methods began to undergo testing and refinement they began in the late 1970s to be referred to under the rubric of "Rapid Rural Appraisal" (RRA). By the mid-1980s, sufficient experience had accumulated that RRA began to become more systematized, as RRA researchers in different parts of the world began to see commonalities in what worked and what did not and began to understand why. As a result, RRA has now emerged as a more fully legitimate rural research methodology that has begun to challenge other, more traditional research methods in effectiveness.

This paper is designed to introduce and expose the reader to state-of-the-art attributes in RRA methodology, and to explore the potentials for applying RRA in forestry extension programs. In so doing, we will also cite examples from recent RRA experience in forestry-related contexts in Northeast Thailand to demonstrate the kinds of information RRA usage can provide that may be relevant to forestry extension programs.

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The Need for Rapid Rural Appraisal in Forestry Extension

The 1985 International Conference on RRA identified six types of roles and needs for which RRA has been usefully applied to provide accurate and timely information (Khon Kaen University 1987:20-23):

- 1) to explore, identify and diagnose rural situations, problems, or issues;
- 2) to design, implement, monitor, and evaluate programs, projects and development actions;
- 3) to help develop, extend, and transfer technology;
- 4) to assist in policy formulation and decision making;
- 5) to respond to emergencies and disasters; and
- 6) to improve, supplement, or complement other types of research.

All or nearly all of these needs exist at various times in forestry extension programs as they do in other rural development or rural resource management situations. Items 1 and 4 above, for example, refer to RRA's ability to assist in management and policy formulation by examining the potential effects of various policy options, or by exploring rural situations in an open-ended manner to identify issues and problems or to intensely study a topic, problem or issue in an interactive, interdisciplinary manner, increasing the likelihood "that all elements are identified and understood" (Khon Kaen University 1987:21). At the start of a forestry extension program, RRA could thus be used to help identify principal issues that the program would focus on, or to test the appropriateness of programatic ideas already "on the drawing boards." For example, RRA might be used to help identify who the target (client) groups should be, where they are and roughly how many of them there are. Information of this sort can be attained through RRA at levels of precision sufficient for policy and planning purposes. For broad, "high level" purposes such as this, the use of a highly qualified RRA team is warranted.

Besides these programatic or policy-level roles, RRA has proved useful in project-specific activities, to provide information for project design, monitoring and evaluation, or to better understand and help solve problems encountered during implementation. In forestry extension RRA can be used to help plan, monitor, trouble-shoot and evaluate the specific activities that extension agents are expected to undertake. RRA has proved useful in examining small-scale wood-based enterprises, to understand who is involved, what their problems are etc. (e.g., Panya et al. forthcoming). With respect to technology, RRA has often been able to help bridge the gap between the technologist and the users, providing better information on the actual situations in which the technology must be used, and the needs, problems and potentials involved. This is especially effective if the technologists themselves are included on RRA teams.

In responding to emergency situations, RRA is often an appropriate way to get needed information fast, although other methods, such as remote

sensing, may be even faster or more appropriate, depending on the topic and the situation. When extension agents are called upon to provide an assessment of conditions in their local areas, they will be able to provide more accurate assessments if they use some of the more systematic tools of RRA, rather than intuition or guesswork.

Finally, RRA has been used to supplement, complement and improve other research methods. When high precision, longer term study or more numerous units of observation are required, RRA is often not the most appropriate methodology, but RRA has been used before, during and after the application of other methods that may better suit these needs. The use of RRA in such circumstances has proven highly advantageous, adding information that would not otherwise have been obtained and improving overall research results (see Khon Kaen University 1987:22-23; Thomas and Suphanchaimat 1987). RRA has been used in complement with questionnaire survey to better understand villager-forest relationships and villager attitudes toward forest (Ngamsomsuke et al. 1987). On the subject of tree litterfall effects on paddy soil fertility in Northeast Thailand, longer-term litterfall collection and analysis techniques were used, but were advantageously supplemented by semi-structured interviewing (Vityakon et al., forthcoming).

For all these types of roles and needs, RRA has a potentially important, perhaps critical usefulness. Developing the capabilities needed to use RRA in a forestry extension program, then, can be seen as essential. However, the decision to use RRA at any particular time and place should be done on a case by case basis. For any particular need, RRA may not be most appropriate, or, more often perhaps, it will not be appropriate as the ONLY learning avenue to take. The 1985 International Conference stressed that the usefulness of RRA is most heavily dependent on the quality and experience of the team, the proper conduct of the RRA itself, and the ability of the program or institution to be flexible enough to make the best use of the findings (Khon Kaen University 1987: 29, 23).

Before further discussing application of RRA, it will be worthwhile to present the reader with a more detailed description of the RRA process itself - to see what RRA is, how it is done and why, etc. It should be stressed that this short paper offers only an exposure to RRA. It is inadequate as a training vehicle (but training needs will be discussed near the end of the paper).

WHAT IS RAPID RURAL APPRAISAL?

Rapid Rural Appraisal processes, methods, tools and techniques have undergone considerable development in the past ten years. RRA has now been applied to acquire information and make assessments in many fields. It is gaining increasing acceptance as a distinctive and powerful research methodology appropriate for use in many situations that require timely and accurate understanding of rural conditions. In this section, we will briefly summarize RRA in terms of a description of its attributes (definition), its principles, its methodological range, and typical sets of activities and sequences, as well as mentioning a range of applications to date.

Definition

The summary report of the 1985 International Conference on Rapid Rural Appraisal described RRA in the following manner (Khon Kaen University 1987: 5-6):

RRA is essentially a process of learning about rural conditions in an intensive, iterative and expeditious manner. It characteristically relies on small multi-disciplinary teams that employ a range of methods, tools and techniques specifically selected to enhance understanding of rural conditions, with particular emphasis on tapping the knowledge of local inhabitants and combining that knowledge with modern scientific expertise. Many RRA tools and techniques were adopted to achieve increased accuracy at low cost, in terms of time and money. But RRA is characterized by accelerated learning, not just overall speed: rapid rounds of field interaction that result in the accumulation of increasingly accurate knowledge. This highly "iterative" process reduces error in that acquired knowledge is continually subjected to testing and reconfirmation, for example, through direct observation and on-site "probing" in semi-structured interviews, to check, revise, re-check and refine information. RRA's reliance on small, intensively engaged inter-disciplinary teams allows the exploration of subjects which do not fit neatly within disciplinary boundaries. Flexibility is another crucial aspect of the RRA process, given the speed at which knowledge is being discovered and refined. Practitioners must creatively adapt the methods of RRA, not only in planning specific appraisals, but throughout the process of conducting them. Taken together, RRA's many aspects combine in a learning approach which is uncharacteristic of other research methods, and which shortens the chain and process of research analysis.

Principles

The above description assumes that the conduct of rapid appraisal is guided by certain principles that help to account for the strength and potential of this research methodology. There are several such principles (Khon Kaen University 1987:9-13). "Triangulation" is a principle concerned with improving accuracy in RRA. "triangulation" means approaching information from several different points of view (often three, hence the term). It involves conscious selection in several different dimensions. For example, RRA team composition is chosen ("triangulated") to get a good mix of disciplines and backgrounds. Units of observation (villages, households, etc.) are chosen to get a cross-section of variation in factors identified as being relevant to the subject under study (for many agricultural topics, for example, households across a range of farm size and tenure status are studied). Choice of the particular methods and tools used on RRA is also "triangulated", so that information can be cross-checked and interrelated. For example, semi-structured interviewing can be used in combination with a number of direct observation techniques and these two together might be used with map and aerial photo analysis.

Other principles in RRA are that research should be viewed as exploratory and be conducted in a highly iterative manner, avoiding unwarranted assumptions and maximizing the opportunity for progressive learning. Teamwork and interdisciplinary perspectives are important, as

are flexibility, substantial use of indigenous knowledge, and use of conscious judgement. Conscious judgment must be used throughout the course of RRA work in order to make the various necessary decisions about how best to proceed with the conduct of research. For example, there are trade-offs involved in the degree of precision to be used in data acquisition and it is important that the degree of precision used be appropriate to the type of information and the purpose of the study (Chambers 1987:38). All these principles combine to influence the selection of team members, methods, tools and techniques, sites, timing, activities and processes, which in turn influence how well the RRA succeeds.

Range of Methodology

Many of the specific methods, tools and techniques of RRA are not new but have been borrowed and adapted from various fields. Their use in RRA, however, is usually different from other applications, and experience in RRA also tends to modify these methods, tools and techniques being used and exchange them for others, or develop new ones as needed. This experience then contributes to a large and growing body of methodological options for RRA work. A major method used in almost all RRA work is semi-structured interviewing, because of its perhaps unique suitability to help fulfill most of the principles of RRA described above. Other major methods include many forms of direct observation; direct measurement; use of indicators; use of time-space schematics, maps and aerial photographs; interviewing guides; key informants; and supplementary use of pre-existing data and information about the areas and subject matter under study.

A large variety of specific tools and techniques have been employed in RRA work, and many of these have been described in various papers presented at the 1985 Conference (see Khon Kaen University, 1987). A few examples are crop calendars, activity sequence charts, "time line", "probing" techniques, decision trees, logic trees and interview "protocols". It is important that practitioners of RRA learn and master the most commonly useful tools and techniques, since ability to employ them effectively on the spot is crucial to success in RRA work.

Typical Activities

Many of the papers presented at the 1985 International Conference describe activities that take place during RRA. The various types of activities have also been described in a generalized form in the Conference Summary (Khon Kaen University 1987: 13-15). Typically, RRA work starts with a preparatory phase during which background information, maps, secondary data, etc. are assembled. Assistants may visit field sites to help obtain this information. Discussion sessions are held to review this information and to elaborate the topic of the study with an initial set of broad questions or subtopics, to help guide interviews. Selection of the members of the team may also be changed or expanded in this phase. Initial field visits of short duration (one day or less in the field) may also be undertaken to help refine subtopics and choose development and test methods, tools and techniques. In Khon Kaen, some computer graphics, especially developed for rural use and RRA, have also been used to help study secondary data, before and after field visits.

Once the team is satisfied that preparation has progressed to the point that a longer field trip is warranted, a major field visit is undertaken. Field visits of this type may last from four to seven or more days, and during each trip, all team members devote all of their energies and concentration to the subject and conduct of the RRA. All RRAs would normally include at least one field visit of this type, where most of the learning takes place. Where warranted, however, several such trips may be necessary or shorter follow-up trips may be required after the main trip, to add important information about sites not yet visited, or to fill in missing information that was not seen as important at the time in sites already visited. Throughout the fieldwork, the RRA team meets frequently on its own to discuss progress, plans, methods, hypotheses, etc. Trips are carefully planned in advance, but an important point is not to treat the plan as a "blue-print" which must be followed no matter what, but rather to constantly assess the plan and revise it where necessary. Experience has shown that frequent revisions are almost always necessary for the successful conduct of RRA.

In an atmosphere where open learning takes place on complex subjects, RRA team members typically feel that there is always a great deal more to be learned. While this is a healthy attitude for a researcher to have, it is also important to complete the particular RRA in a timely and efficient manner. Write-up of consolidated refined field notes (and even the draft report) is best accomplished in the field, as experience has shown that delay results in significant loss of information and insight. RRA reports should always be considered "working documents" rather than "the final word" and such reports typically point out what the team feels still needs to be learned, as well as the findings to date. RRA reports are then circulated immediately to all concerned, to be of most use. It is also important to remember, however, that the team will not be able to capture in the report all that they have learned in the field, nor should they try to (it makes for bulky, sometimes rambling, hard-to-read reports). RRA team members can, instead, serve as resource persons in various follow-on activities. Perhaps most important of all, key individuals that will be involved in making the most use of the findings, should, if possible, be full working members of the RRA team itself, in order to get the most value from the RRA.

Applications

Rapid Rural Appraisal has, in the last ten years, been applied in many regions of the world, principally Latin America, Africa and Southeast Asia. In Southeast Asia, most work has been done in Thailand, the Philippines and Indonesia. While much of the RRA work done has been concerned with agricultural topics, RRA experience is also accumulating on subjects in forestry, water resource management, fisheries, education, health and nutrition and small-scale enterprise. Gibbs (1987:194-206) has reviewed much of this experience. The 1985 Conference bibliography has also been updated in the publication of the proceedings (Khon Kaen University 1987: 327-342) and lists nearly two hundred reports and publications on RRA experience. Recent experience in Northeast Thailand has included work on topics related to forestry and trees (referenced in other sections of this paper) and this work is referred to in the annotated bibliography at the end of the paper. Earlier work in RRA is referenced in the reports on the Workshop and Conference on RRA held at the University

of Sussex (works mentioned in Chambers 1987:33 footnote 3).

CONCEPTUAL FRAMEWORKS FOR STUDYING NATURAL RESOURCE USAGE

RRA practitioners are often asked "where do the questions come from?". Researchers unfamiliar with RRA but who are accustomed to using detailed questionnaires or highly prescriptive research plans often find it difficult to understand how RRA research can be successfully conducted without such details determined in advance. Questions and ideas in RRA seem to come from a combination of sources (also see Grandstaff and Grandstaff 1987, Limpinuntana 1987). These are (not in order of importance): (1) the disciplinary training of the individual researchers; (2) systems concepts and other interdisciplinary conceptual frameworks; (3) the subtopics or other guidelines developed before and during the conduct of field work; (4) the use of various "conceptual tools," including time/space/logic schematics; (5) what local inhabitants and key information say, especially during semi-structured interviews; (6) observation (including observation of interviewees during interviewing); (7) analysis and discussion of data being acquired from all the methods used; (8) what other researchers say, during interviewing and in team discussions; and (9) the researcher's individual thought processes, interests and skills. All of these sources only begin to work successfully for the researcher, however, after sufficient training and experience in RRA.

In the remainder of this section, we will focus on just one of the "interdisciplinary conceptual frameworks" that help guide researchers in the conduct of RRA when the subject involves natural resource usage. This has been described as the "resource systems approach" (Ruddle and Grandstaff 1987, Grandstaff et al. 1980). It is discussed here because it has recently proved to be useful in studying forestry-related issues in several RRAs in Northeast Thailand and may have particular relevance to helping identify issues and needs for forestry extension in specific rural areas, such as the Northeast. This type of RRA work has been called "topical RRA" because it assumes that a topic or subject for the research has at least been broadly identified, in this case, within the category of natural resource usage, such as fuelwood, charcoal, or food from natural sources.

To investigate the topic, one assumes that categories or steps can be discerned in a process by which materials are obtained from natural sources, undergo whatever transformations are necessary to provide a product for human use, are then put to various uses, etc. Research usually starts with an assumption of four basic steps - procurement, transformation, delivery, use - but these categories are quickly made more specific, changed, expanded, or contracted as increasing information from all research sources, including field trips and interviewing, allows increasing understanding. It is important to investigate each category, or step, in the resource system because what occurs at any step can affect what happens at any point in the system - they are often linked in many ways: by socio-cultural forces (social relationships, values, tastes, etc.), by the forces of supply and demand, and by the laws of science governing the flows of energy, material and information (ecological relationships). It is the job of the RRA team to uncover and investigate in detail all these relationships (a principal reason why an inter-

disciplinary approach and multi-disciplinary team are used) in order to understand what issues, problems, and opportunities may be involved.

For purposes of investigation, the resource system process may be divided into three steps, or five steps, or whatever, depending on what new information shows, but also depending on pragmatism in how well the categories "work" in the field. In a study on fuelwood (Subhadrira, Suphanchaimat et al. 1985), for example, initial broad categories included the methods of fuelwood acquisition, and the ways the fuelwood was used. In a recent study of charcoal (Panya et al. forthcoming) the charcoal system was divided into four major steps: acquisition of the wood, transformation of wood into charcoal, the distribution of charcoal and consumption/usages. Within each category, the RRA team elicits basic information and seeks to discern patterns. Acquiring basic information often involves asking simple questions related to who, what, when, why, and how. For example, in fuelwood acquisition, the team studied who gathered fuelwood (men, women, children, older people, poor households, etc.); where it was done (nearby, distant places, public forest, private land, etc.); when it was done (during the day, seasonally, how often, etc.); etc. For each of these, understanding why certain people, places, techniques, etc., are involved usually necessitates also understanding why others are not involved.

As more and more information emerges, further categorization occurs, offering opportunities for data source triangulation and increasingly detailed investigation. This may relate to any type of basic information in any of the steps in the resource process, or to the steps themselves. In the fuelwood study, for example, transportation of fuelwood became an important step in the process. In a study on natural foods in the Northeast (Somnasaeng et al. 1986), food sources (the where in the acquisition category) were categorized as paddy land, common lands and water bodies near the village, and forests. In a study on villager-forest relationships in a particular watershed (Ngamsomsuke et al. 1987), however, a more detailed set of source categories proved useful: deep forest, upland forests, upland fields, paddy field margins, paddy fields, etc. In a study on charcoal (Panya et al. forthcoming), the producers, acquisition sites, kiln types and methods, distribution methods, distributors, usages, and users were each increasingly sub-classified as the study proceeded, with investigation of all sub-classifications that were found, to be sure the entire system was adequately understood.

The resource system approach is a fairly simple, easy-to-use conceptual framework that has proved to be of great help in rapid appraisal work that seeks to understand complex natural resource usages in rural areas. However, it is only one of the interdisciplinary systems concepts that RRA researchers should be familiar with (because no single theory or framework has proven itself clearly superior to all others in conceptualizing complex human-environmental relationships). Others include various concepts in human ecology (e.g., Rambo 1983), the leading concepts in the fields of systems ecology and sociobiology (e.g., Foin 1976, Wilson 1975), agro-ecosystems and farming systems modeling approaches (e.g., Conway 1985, Shaner et al. 1982), etc. Also, the use of conceptual frameworks to help generate ideas and questions during RRA is a necessary complement to, rather than a substitute for, a firm grounding in all the other sources that were listed at the beginning of this section.

EXAMPLES OF FORESTRY-RELATED RRA IN NORTHEAST THAILAND

In this section, we will review some of the results of recent RRA work in Northeast Thailand as examples of the kinds of information that can be expected from RRA application that may be of use in forestry extension. In Northeast Thailand, many RRA research studies have been conducted over the past four years. Most were on agricultural topics, but over a dozen of them were focused on or directly related to issues in forestry and/or trees/tree-based activities. Most of these studies are listed in the attached annotated bibliography. RRA has been used in forestry project planning (NTUSF 1987; Subhadhira and Apichatvullop et al. 1987), to help monitor and guide forestry project implementation (Ngamsomsuke et al. 1987), to understand and identify issues in a wood-based small-scale enterprise (Panya et al. forthcoming), to understand and identify issues in villager-forest interactions (SUAN forthcoming; Ngamsomsuke et al. 1987), in villager dependence on natural foods (Somnasaeng et al. 1986), in fuelwood procurement and usage (Subhadhira, Suphanchaimat et al. 1987; Rathakette and Ratanapanya 1985), in household tree usage/conservation (Apichatvullop et al. 1987; Rathakette et al. 1985) and on the role of trees in rice paddies (Grandstaff et al. 1986; Vityakon et al. forthcoming).

It is not possible in a paper of this length to summarize all the findings from all these studies that may be relevant to forestry extension in Northeast Thailand. The following are but a few examples:

1) Forest Dependency. Northeasterners rely on trees and forests for a large variety of needed products. In general, the closer people live to forest, the more they depend on it, but villagers in areas far from forest are also heavily dependent on trees, especially trees in paddy field areas. Particular products and species, their uses, and issues in their acquisition and sustainability have been detailed in most of the above-mentioned studies. Ngamsomsuke et al. (1987) for example, found nearly 250 species of forest plants, animals and insects that local villagers made use of (an additional 200 were found by a much more expensive and time-consuming formal survey, but most of these were medicinal plants gathered by a small number of traditional doctors - if the RRA team had wanted to focus more on this particular specialization, it could easily have done so by using the traditional doctors as key informants). A primary role of any extension program is to offer information to villagers that will help them meet needs. RRA can show, in detail and with a depth of understanding of issues, what these needs are, how they are currently being met (or not met), what the problems are, etc. This is a necessary prerequisite to the design of information packages and technology and to training extension agents.

2) Species Preferences. A particular example of extension needs examination is that of species preferences. RRA can show what particular species are preferred for what purpose, and why. Study by RRA has revealed many unsuspected findings in this regard. For example, in some areas of the Northeast Phyllanthus polythyllus is planted extensively on paddy dikes. Enquiry concerning the plant and how it is used revealed a whole set of conditions or needs that this plant fulfilled (detailed in Grandstaff et al. 1986). These conditions provide a virtual blue print for the type of species needed in paddy field areas where soils are crumbly and

there are no forests nearby. If forestry researchers can find species that meet these conditions better than Phyllanthus polythyllus or meet them nearly as well but have additional uses too, success of promoting such species through extension will be more than highly likely.

3) Monitoring Extension Activities. RRA often reveals what is going right and wrong in extension, and why. For example, Grandstaff and Grandstaff 1986 detailed information on rice seed extension, showing what particular varieties were needed under what circumstances, when timing of delivery was critical, etc. Rathakette et al. 1985 identified scarcity of tree seedlings as a key factor in slowing extension in fuelwood-scarce villages, before the private sector moved in swiftly with Eucalyptus seedlings to help meet this need.

4) Agroforestry. Many of the RRA studies reveal information about villager agroforestry activities and needs. Trees with edible parts (leaves, flowers, fruit, etc.) are of particular interest to Northeasterners, as is intercropping (Subhadhira, Suphanchaimat et al. 1987). Management of houselots is important (Apichatvullop et al. 1987) as is the role of trees on private lands and the integration of trees into local farming systems (particularly their interactions with rice and livestock) (Panya et al. forthcoming, Grandstaff et al. 1986).

5) Technology Design. RRA frequently reveals information that may be useful for technology design, as well as helping to explain why various existing technologies were modified, adopted or not adopted by villagers. For example, Subhadhira et al. (1987) explain why the "Chinese" stove was widely adopted in Northeastern villages. Panya et al. (forthcoming) show that certain types of charcoal kilns are widely preferred (ones that are small, or can be used for varying quantities of wood) despite being less energy/quality efficient than larger or more permanent types. There are several reasons for this, including the fact that wood conversion (kiln use) is largely an individual household activity and that the lack of a sufficient quantity of wood at the time needed makes it uneconomic to use a larger, more efficient kiln. This has strong implications for technology development and explains why larger kilns that have been promoted have generally not been adopted.

6. Local Organization. Extension activities frequently try to work through (or create) local organizations to assist in the dissemination of information and technology, to make credit available, to undertake activities requiring shared labor, etc. In other cases extension aims at households or particular types of households ("model" farmers, people with upland fields, the landless, etc.) These are major organizational decisions which RRA can assist in by examining how local resource practices are organized and why. For example, in an RRA study by Subhadhira, Suphanchaimat et al. (1987), close examination of villager activities in fuelwood-scarce villages revealed that the organization (roles, labor, timing, regulations on harvesting) needed to operate community woodlots would probably not be attractive to most villagers. Instead the study found that individually-held and household land was becoming increasingly privatized, under the pressure of increasing scarcity of many resources (not just fuelwood). The promotion of fuelwood production at household level, on private land, was thought to be feasible and increasingly attractive to villagers.

ACQUIRING RRA CAPABILITIES FOR FORESTRY EXTENSION

Before a forestry extension program can make the best use of RRA, it makes sense to address certain questions in the planning process: (1) Who should acquire RRA skills, and at what levels? (2) How can these skills best be acquired? In this section, we will not try to answer these questions definitively, since they are ones that the extension agency should answer, taking account of its roles, institutional constraints and opportunities, etc. Instead, we will attempt to provide some issues or guidelines that may assist the agency in answering these questions.

Personnel and Skills Levels

RRA may be applied at various times for various purposes. Both scale (frequency in time and number of RRA practitioners employed) and purpose (how important is the use of the RRA results) affect the choice of who should acquire RRA skills and at what levels. For RRA work of high importance but low frequency, such as RRA used for special policy-relevant studies or programatic design, etc., it makes sense to employ the highest levels of expertise available. In some instances, it may be appropriate to hire outside consultants to perform this work. However, many agencies have policy research or research/evaluation units. It may well be more time and cost effective, as well as of greater benefit to the agency, to acquire high-level RRA skills in such a unit, even if the unit has to be created or augmented to do this, than to rely exclusively on consultants for this type of RRA work.

For personnel at intermediate levels, such as "subject-matter specialists" based in provincial or regional headquarters, and perhaps also for other technologists who do not have the opportunity to acquire a full set of RRA skills, more tailored forms of RRA may be more practical. In many situations, much useful information can be acquired using more explicit guidelines and a smaller kit of tailored tools and techniques, combined with periodic participation, assistance and advice from centrally based units with more in-depth training. Finally, the local extension agents themselves can acquire some of the skills normally used by RRA teams, which will help them better understand their clients, both for the purpose of passing on knowledge and technology to the right people in the most effective manner, but also, and importantly, to make them more effective in acquiring information that will be of use to technologists and managers (see de los Reyes 1987; Khon Kaen University 1987:30).

Acquisition of RRA Skills

RRA can be rapidly performed, but full RRA skills cannot be rapidly acquired. This simple truth needs to be stressed, since more than a few agencies and projects have expected that rapid appraisal could be learned in a day or two. Anything that requires high skill also requires long study and practice, regardless of how rapid the performance. The fact that it "looks easy" when observed in the field is misleading (as an analogy, think of how "rapid but easy" it looks when a musician performs.). Also, while anyone can learn RRA and improve significantly with practice, probably not everyone can become highly skilled at it. RRA skills are just like any other set of skills in these respects. But the purpose of acquiring RRA skills is to use them over and over again. The results these

skills can produce, coupled with their frequent use, more than justify the efforts needed to acquire them.

Highest capability in RRA first assumes advanced training in particular disciplines relevant to the envisioned subject matter of the RRA work, and this nearly always means both biophysical scientists and social scientists are needed. In addition to separate disciplinary backgrounds, however, RRA practitioners need to learn interdisciplinary concepts and theories (referred to above). This can take from three months to several years or more, depending on the background of the individual and the degree of understanding sought. Once these are acquired, thorough training and practice in the methods, tools and techniques of RRA are needed. Based on experience in Khon Kaen University, it is estimated that this phase takes about three to six months (full time training and practice which includes extensive field work and all phases of RRA, including finalizing notes and report writing). For more restricted uses of RRA (the intermediate and extension agent levels), trainees should be able to learn a great deal in two months, once tailored procedures, tools and techniques have been developed to suit the needs of the particular agency and situation. After completion of training, it has been found that success in RRA significantly increases if the new practitioners can have occasional contact with their former trainers. In many ways, learning how to do RRA never really stops - new challenges always arise, and the more RRA is conducted, the more skilled the practitioners become.

RRA training and practice always involve a lot of time in the field actually conducting RRAs. Also, RRA field practice seems to be very trainer intensive. Thus far, the ideal ratio of trainee to trainer during field exercises seems to be less than one, i.e., trainees learn best as members of an RRA team in which the other members are all highly skilled. One reason this apprentice-type training seems to have been most effective is that much of RRA process is apparently counter-intuitive, and initially awkward, sometimes embarrassing. Trainees need to be deeply convinced that things "work" by seeing them work. And RRA trainees need a lot of feedback on what they are doing right and wrong, in order to learn good field habits, to "unlearn" some inhibitions and previous research modes, to change expectations and attitudes, etc.

It is expected that the ratio of RRA trainee to trainer can be greatly increased. What is needed is the development of a large enough staff highly skilled in teaching RRA, plus highly developed curricula and training materials (including videotapes with lessons from dozens of actual RRAs), etc. If this can be done at national levels or higher, many agencies, programs and projects would benefit at reduced cost from "economy of scale", and more people could be more quickly trained.

SUMMARY

Rapid Rural Appraisal is a methodology for the acquisition of accurate information about rural areas, in a timely and cost-effective manner, at appropriate levels of precision. RRA has now undergone much refinement from ten years of world-wide experience, and is beginning to challenge more traditional research methods in effectiveness of acquiring many of the types of information needed for rural development activities. RRA has been used in a variety of fields, including forestry, in planning, design, implementation, monitoring, evaluation, in policy-related study, to help respond to emergency situations, and to complement other types of study.

RRA has been successfully used to help plan, monitor, implement and evaluate extension programs and activities, and should be seen as a necessary capability to build into forestry extension programs. In Northeast Thailand, RRA has been applied to many forestry and tree-related topics and issues, during which it has demonstrated its value. RRA has provided important information on agroforestry, on technology design, on villager attitudes toward forest, on villager-forest interactions, on species preferences, on issues in local organization, and many other topics and issues relevant to forestry extension. A "resource system" approach has been particularly helpful as one of the conceptual frameworks used to help guide research on forestry and tree-related subjects and issues.

To acquire RRA capabilities, forestry extension programs should plan who in the organization or program is to acquire what levels of RRA skills. RRA skills acquisition, unlike the practice of RRA, cannot be done rapidly. For highest skills levels, many months of training and practice, even years, may be necessary. For less skilled levels, time and effort must first be devoted to tailoring RRA "toolkits" and training courses to the particular needs of the program, the area, and other situational needs, before larger numbers of people can be more rapidly trained. In general, good RRA training is very trainer-intensive, but if sophisticated curricula and training aids can be developed at national levels or higher, "economy of scale" can be expected to result, and more people could be more quickly trained in RRA.

ANNOTATED BIBLIOGRAPHY OF RRA APPLICATION RELATED TO FORESTRY/TREES ISSUES IN NORTHEAST THAILAND

Apichatvullop, Yaowalak, Wilaiwatt Grisanaputi, and Charoon Prohmchum. 1987. "Household Use and Management of Trees: A Case Study in Don Chang Village, Khon Kaen Province." Paper presented at the FAO Regional Workshop on Planning Self Help Fuelwood Projects in Asia, February 2-14, in Khon Kaen, Thailand. (Draft).

The study investigated the use and management of trees by residents of Don Chang Village. Composition of varieties and species was found to vary among terrain types, locations and types of land use. Trees in rice paddy fields might be planted or left-over naturally occurring native species but they were usually protected and consciously managed. Planted trees were of multi-usage varieties - for human and animal food, medicine, fuelwood, shade and lumber, etc. Fuelwood was usually not the main purpose for planting trees. Despite the fact that this village was facing fuelwood

scarcity problems at the time of the study, tree planting activity was quite limited, reportedly, due partly to soil salinity and water shortage.

Grandstaff, Somluckrat W., Terry B. Grandstaff, Pagarat Rathakette, David E. Thomas, and Jureerat K. Thomas. 1986. "Trees in Paddy Fields in Northeast Thailand" In Traditional Agriculture in Southeast Asia: A Human Ecology Perspective. Boulder, Colorado: Westview Press.

The study found trees in paddy fields in Northeast Thailand to have high perceived value to farmers for a variety of purposes: shade, fuel, food for humans and livestock, and other uses. People sacrificed land, rice production and labor to maintain, plant, and manage trees in paddy areas. Trees in paddies were perceived as important to the maintenance and overall production of the paddy field areas. The role of trees as nutrient pump was mentioned but not investigated. There were implications for extension activities involving tree planting - farmers have been conducting tests on their own to see what forest species can be grown on paddy dikes and they could benefit from advice on species selection and other techniques. In areas where nearby forest no longer exists and farmers are faced with fuelwood scarcity problems they might be interested in experimenting with fast growing trees on paddy dikes. An important conclusion was that paddies in Northeast Thailand are not just "rice paddies" but actually contain many important interrelated resources - including trees, wild vegetables, fish and shellfish, small game, etc., upon which humans depend. Designs for agricultural changes which take into account all these interrelationships would have a better chance of success.

Ngamsomsuke, Kamol, Prasat Saenchai, Panomsak Promburom, and Bunthom Suraporn. 1987. Farmers' Attitudes toward Forest, Plantation and Conservation Farming in Selected Villages of the Phu Wiang Valley, Khon Kaen, Thailand. Khon Kaen, Thailand: FAO/UNDP Integrated Development of the Phu Wiang Watershed Project, and KKU-Ford Rural Systems Research Project, Khon Kaen University, Khon Kaen.

A study of human-forest interactions in Phu Wiang Valley, Khon Kaen Province focusing on forest dependency patterns and villagers' attitudes toward current activities in the valley including forest replanting by the Forest Department, logging by the licensed company, etc. RRA was combined with formal survey iteratively in this research. Forest dependency was investigated through in-depth interviewing for details on types of forest products, their acquisition and usage by season, in relation to factors such as the size of household rice land holding. About 250 species of forest products were identified through semi-structured interviewing, and an additional 216 (included 113 traditional medicinal ingredients) through questionnaire survey. Lists of common and scientific names of all forest products collected, of tree species used for fuelwood and in charcoal making, and of tree species suggested by villagers for forest replanting were included in the report. The largest varieties of edible leaves and flowers were reportedly available in the dry season. Fire was employed to

encourage growth of edible leaves for humans and grass for animals. Some villagers recognized soil erosion in upland field areas although no conservation measures were taken. Villagers expressed dissatisfaction with the forest replanting project and some adverse effects of Eucalyptus on the environment were mentioned.

One major methodological contribution of this study was the complementary use of RRA and formal survey. The first questionnaire provided part of the basic issues for initial RRA work to focus on and information from RRA was used to revise the questions so that they were concise and relevant. Rounds of such exercise were repeated and sensitive questions rephrased, or removed to be studied with RRA. The use of Northeastern Thai native speakers as enumerators during the survey also proved to be essential.

The Northeast Thailand Upland Social Forestry Project (NTUSF). 1987. Summary Report: Human-Forest Interactions in Northeast Thailand. KU/KKU/Ford 850-0391, Final Report 3. Bangkok: Northeast Thailand Upland Social Forestry Project.

A summary of the results of an interdisciplinary, cross-institution research on human-forest relationships using a case study approach to examine upland watershed forest and agricultural land utilization. Study covered sites with different degrees of government activities in forest conservation and management in Northeast Thailand. The study provided a basis for the design of a social forestry project in which villagers would be involved in forest management in a sustainable manner. Major issues investigated included: (1) human-forest interactions over time, and (2) social, economic, and institutional factors affecting changes in forest land use.

Panya, Opart, George W. Lovelace, Prasat Saenchai, and Panomsak Promburom. Forthcoming. Charcoal in Northeast Thailand: Rapid Rural Appraisal of a Wood-based, Small-scale Enterprise. Khon Kaen, Thailand: Rural Systems Research Project, Khon Kaen University.

Charcoal remains the primary cooking fuel of much of the urban population of Thailand and is a major seasonal (sometimes primary) cooking fuel for the rural population. Charcoal production is also a major income-earning activity for the rural poor in Northeast Thailand especially when subsistence needs cannot be met in any other way. Much of the production and sale takes place outside licensed channels making it sensitive as a research topic and not previously adequately studied. Contrary to general perception, major sources of wood for charcoal production were found to be private agricultural land. A "resource systems" approach was applied in the study to trace charcoal movements from sources and acquisition of wood, transformation, distribution and usage/consumption. In addition to findings which had important policy implications, the research methodology was made explicit and replicable so further studies could be carried out to understand other "forest-based small-scale enterprises" in a timely and cost-effective manner to help design viable extension programs.

Rathakette, Pagarat, Chessada Luengchaem, and Samang Honchoen. 1985.

A Case Study on Tree Planting for Fuelwood at Ban Don Chang, Khon Kaen Province: Invitative Trial at Farm Level. Farming Systems Research Project, Khon Kaen University and Regional Forest Office, Royal Forest Department, Ministry of Agriculture and Cooperatives, Bangkok. (Thai language with English abstract.)

The study started with an inventory of forest tree species and usages in the village common forest area to determine whether it could be

restored and whether management of any form might be needed. Usage of trees in other locations such as those in rice paddy areas was investigated. Tree planting and replanting were currently not widely practiced due to limited access to seedlings. More naturally occurring trees, in terms of density and species, were found in upland areas than in lowland or rice paddy fields. Major source of fuelwood for most villagers was private agricultural land, especially rice paddy. The study concluded that if no further tree cutting took place the restoration of village common forest was quite possible.

Rathakette, Pagarat and Sumalee Ratanapanya. 1985. A Study of Household Use of Fuelwood at Ban Hin Laad, Khon Kaen Province. Khon Kaen: Farming Systems Research Project, faculty of Agriculture, Khon Kaen University. (Thai language with English abstract).

Main sources of fuelwood used by households in Ban Hin Laad village were farmers' own paddy fields. Both charcoal and fuelwood were used for cooking although charcoal was preferred. In cooking, stoves were generally set on the ground under the house except for the Chinese-style tao ung lo which was used in the house. During the rainy season, cooking at home was done using charcoal whereas fuelwood was used while farmers worked in the fields. Other fuels such as gas and electricity were not widely used. The report concluded that the need for fuelwood and the ways farmers had been obtaining fuelwood from trees in their own fields indicated a strong possibility for tree planting for fuelwood in the village.

Somnasaeng, Prapimporn, Pagarat Rathakette, and Sumalee Ratanapanya. 1986. Natural Food Resources in Northeast Thailand. Khon Kaen: KCU-Ford Project on Socio-Economic Studies of the Farmers in Rainfed Areas of Northeast Thailand (currently: KCU-Ford Rural Systems Research Project), Khon Kaen University. (Thai language with English abstract)

A study of food from natural sources, consisting of a series of three RRAs, one per session, was carried out in eight villages in three provinces in Northeast Thailand. The type, usage and acquisition of food from natural sources such as forests and upland fields, natural ponds and streams and rice paddy fields were identified. Vitamins and minerals were obtained from vegetables while protein sources were essentially confined to fish, small game and insects. Food was most plentiful during the rainy season. As the dry season advanced, rice paddy fields which were the most important sources for natural food became the least productive source compared to year-round public water bodies and forest areas. The study found that certain government initiatives such as the community fish ponds, whereby previously accessible public water bodies were stocked and villagers forbidden to fish on a regular basis, might have important negative health implications especially for poor villagers. Lists of common and scientific names of food obtained by season and tables of nutritional values of some natural food were provided.

SUAN. Forthcoming. Ecosystems Interactions Study of a Rural Landscape: The Case of Phu Wiang Watershed, Northeast Thailand. Joint research

of the Southeast Asian University Agroecosystem Network (SUAN), in cooperation with the East-West Environment and Policy Institute, the KKU-Ford Rural Systems Research Project, and the KKU-USAID Farming Systems Research Project, Khon Kaen University.

Three different approaches were used in this interdisciplinary study of the Phu Wiang Watershed in Khon Kaen, Thailand: (a) ecosystem model, (b) process-oriented model and (c) "niche" in a landscape model. Research methods used included RRA. Researchers were members of the Southeast Asian University Agroecosystem Network (SUAN) from Thailand, Indonesia and the Philippines. The team studied five major subject areas: (1) a historical and process-oriented investigation of resource use and its impacts on the economy and the landscape, e.g. the relationships between economic development outside the valley, the need for cash, labor migration and the adoption of cash crop, etc; 2) the impact of land use change and deforestation on the environment, e.g., bird species, vegetation structures of paddy fields, dry evergreen forest, Dipterocarp forest and homegarden; 3) the role of livestock on nutrient and biotic flow whereby the grazing patterns and movements of livestock were traced and nutrient transportation through the animals was measured 4) human interactions with natural ecosystems through the study of the flow and use of minor forest and other ecosystem products and (5) the application of the niche concept in investigating the relative roles and interactions of three major groups of people influencing resource use in the valley-the villagers, the foresters and the licenced logging company.

Subhadhira, Sukaesinee, Yaowalak Apichatvullop, Prasit Kunarat and James A. Hafner, 1987. Case Studies of Human-Forest Interactions in Northeast Thailand. KU/KKU Ford 850-0391, Final Report 2. Bangkok: Northeast Thailand Upland Social Forestry Project.

A report of three case studies carried out in six villages in three sub-watershed areas in Northeast Thailand with different degrees of direct government intervention in forest management. The study included several issues on background, site location, trends in deforestation and more specific issues on settlement history, migration, land and forest utilization, forest land dependence and local social organizations. Inter-group conflicts were found to exist and contribute to the failure of development organizations instituted by the government and to the underlying dissatisfaction with the land allocation system under the government's Forest Village Program. The study also concluded that not only an understanding of the interactions between the natural ecosystems and human social systems was essential but also that both aspects must be treated in any potentially viable social forestry program design.

Subhadhira, Sukaesinee, Nongluk Suphanchaimat, Suriya Smutkupt, Suchint Simaraks, Weera Pakuthai, Kalaya Suphannapesat and Panada Petchsingha. 1987. "Fuelwood Situation and Farmers' Adjustment in Northeastern Thai Villages". In Proceedings of the 1985 International Conference on Rapid Rural Appraisal, Khon Kaen University. Khon Kaen, Thailand: KKU-Ford Rural Systems Research and KKU-USAID Farming Systems Research Projects.

The report describes the process of adjustments by villagers in relation to fuelwood scarcity as forest lands were converted into other forms of land use. Villagers were quite concerned, even in fuelwood plentiful areas, about the increasing difficulty in obtaining fuelwood, in terms of time, money and risk of arrest when fuelwood was collected from forests. The increasing fuelwood scarcity, however, has not had major effects on villagers' cooking habits in either stove type or other measures to conserve fuel. Several non-production activities which, together, consumed more fuelwood than cooking, had indeed changed, and some had stopped altogether in some areas. These included social fires and watchfires, fires for livestock, heating water for bathing, etc. A small but significant inverse correlation between household size and fuelwood consumption per person indicated that the trend in decreasing household size in the Northeast might not have a beneficial effect on fuelwood consumption. Signs of recovery from fuelwood scarcity problems were found in one area where people have been planting trees on their own land with fuelwood as one of the expected uses of the trees—one household claimed to be fuelwood self-sufficient. Promotion of tree planting on private lands might be a more practical and less costly alternative compared to village community woodlots programs promoted by various agencies.

Subhadhira, Sukaesinee and Yaowalak Apichatvullop. 1987. "Rapid Rural Appraisal Experience in the Northeast Thailand Upland Social Forestry Project." Paper presented at the FAO Regional Workshop on Planning Self-Help Fuelwood Projects in Asia, February 2-14 Khon Kaen, Thailand (Draft)

The paper describes the experience in the application of rapid rural appraisal in combination with other research methods in the study of "The Northeast Thailand Upland Social Forestry Project." It briefly describes the project objectives, primarily for the planning of social forestry activities by the Royal Forest Department. The paper then discusses the role of RRA, its advantages as a research methodology, and as a means to organize research personnel given time and budget constraints, its limitations and problems encountered in its application.

Vityakon, Patma, Suriya Smutkupt and Buared Prachaiyo. Forthcoming. "Studies on Trees in Paddy Fields: Its Contribution to Paddy Soil Fertility." Draft interim report. Rural Systems Research Project, Khon Kaen University.

The RRA study of trees in paddies (Grandstaff et al. 1986), revealed the possibility that many species and individual trees in rice fields in the Northeast might be acting as "nutrient pumps," influencing soil fertility, which in turn influences rice, other crops and natural foods that are part of the paddy agroecosystem. The present research is a follow-up study investigating the tree litterfall-rice paddy relationship. A year-long (but inexpensive) study has collected and is currently analyzing tree litterfall from rice fields in different terrains in the Phu Wiang Valley in order to better understand what role trees might be playing in this respect. The research will be carried out for a second year but an interim report and preliminary finding should be available soon.

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THE COMMUNITY-BASED FOREST RESEARCH AND DEVELOPMENT
PROJECT: EXTENSION THROUGH ACTION RESEARCH

1

Gloria R. Diokno

The Forestry Research Institute (FORI) has two objectives. One is to carry out and maintain an aggressive program of relevant research on forest production. Seventeen research centers strategically located in different parts of the country are the scene of much of this research. The other objective is to maintain an effective outreach and extension program based on research results that will continuously improve the management, development and use of forest resources. FORI's extension thrusts are formulated in accordance with the development goals set by the National Economic Development Authority, the development thrusts of the Department of Environment and Natural Resources and the Bureau of Forest Development, and the research priorities identified by the Philippine Council for Agriculture and Resources Research and Development.

FORI shares the national belief that development is for the people, who must have an active role in charting what development is. Wanting to test the hypothesis that forest research can be conducted with the people themselves, and that a research undertaking is an extension activity in itself, FORI in 1981 expanded its existing extension programs in communication/public information and technology transfer with a third component, called the Community-based Forest Research and Development Project. Popularly called "COMBASED" within the Institute, the project evolved from the perception and belief that:

1. Upland communities are dependent on the forest or forest products. Most of the people in these communities belong to the poorest sector of the Philippine society, but unlike lowland farmers, they seldom are served by the government. Sadly, they are often blamed for the destruction of the forests;
2. Certain forest studies or certain aspects of forest research can be done through rural communities. Examples of these are studies on fuelwood production; growth and yield of non-timber forest products such as bamboo, palms and vines; methods of erosion control; and agroforestry;
3. Some forestry technologies, when transferred to and adopted by the upland communities, can improve their land productivity and, ultimately, their socioeconomic well-being.

Upland communities, just like lowland rural communities, should be assisted to become self-reliant and productive. One way of doing this is to help them build their capability to manage themselves, identify their own problems, and seek relevant solutions. Certain forestry technologies may be used as an entry point in helping them build their communities through the long process of capability building.

1 Ecosystems Research and Development Bureau, (formerly FORI).

On the other hand, over the last 12 years FORI has evolved a strong academically trained research corps that has accumulated knowledge about forest production and harvesting, a broad field that encompasses practically everything about forests and problems inherent to them and their surroundings. Some knowledge about the various aspects of forestry that FORI has must be shared with the science community and upland farmers.

Purpose of the Project

The project's four features reflect its purposes:

- A. The project utilizes forestry research as a major entry point. Examples of these are:
 1. Replication of earlier studies or verification of results of previous studies under different conditions, such as agroforestry techniques.
 2. Testing available technologies such as planting of bamboo and soil stabilization.
 3. Conducting new studies on the silviculture and management of forest commodities that are of immediate economic importance to rural communities such as fuelwood tree species, rattan and other non-timber forest species that are used as raw materials for existing or new cottage industries.
- B. The project emphasizes community capability building, hand in hand with research implementation and technology transfer strategies. This feature is based on the assumption that a community which can help itself is more likely to achieve more than one where capability is lodged with only a few of its members.
- C. The project is likewise an economic livelihood project. As such, it should be able to:
 1. Support existing or new cottage or village industries/economic activities, such as planting of non-timber forest species (e.g., bamboo, buri, anahaw) as a source of materials for handicrafts.
 2. Help satisfy some basic needs of rural communities, e.g., fuelwood plantation, community plantation of medicinal plants, and bamboo for housing and other needs.
 3. Create new economic opportunities, e.g. community fuelwood plantation for energy (wood/charcoal production) and fodder plantation for animal feeds.
 4. Increase farm productivity, e.g. optimal farmland utilization through agroforestry and soil conservation techniques.
- D. The project seeks to establish a closer people-government partnership. Where a government's assistance is visible through its agents' presence and actual work, it is more likely that the people will understand the government better.

Methodology

A. Basic implementing guidelines

Although the project is conceptually and operationally based on forest-technology, it is designed to reinforce the philosophy that communities can evolve themselves into self-reliant units. The project uses and emphasizes community capability-building methodology whereby the community or a group of farmers participates in the research project and learns and internalizes the processes of planning, organizing, managing and deciding by and for themselves with technical assistance from the FORI change agents.

For instance, FORI staff help farmers identify problems and match them with forestry concerns (e.g. fuelwood, watershed, medicinal plants, nontimber forest species). After some deliberation among community residents and upon consultation with the researcher, the decision on what projects to undertake is left to the community.

B. Project staff orientation

At the start of the project, all project staff, composed of selected researchers from the Central Office and research centers, attended a three day seminar/workshop for:

1. Orientation on the project concept, rationale, objectives and strategies for implementation. It was more of a discussion on what the project is and what it is not.
2. Planning and initial implementation activities. This involved a discussion on what to do, what not to do, how things are to be done and how they are not to be done. It also defined the functions and the roles of the research center staff involved in the project.

C. Project site selection

The following criteria were used in selecting project sites for each research center:

1. The site is an upland community, preferably inside the forest zone with at least 30 families.
2. It is relatively accessible, which means that going there is not a problem.
3. It is a contiguous area of at least 50 hectares.
4. Willingness to participate in the project is expressed by a substantial number of community residents.
5. There are possibilities for forestry technologies to improve their socioeconomic conditions.

In each research center, two to three sites were evaluated before the final site was chosen. In most cases, the sites were selected in coordination with the Bureau of Forest Development (BFD) and local officials.

D. Entry into the community

The project has adopted an approach common to many development activities of building rapport with the community through the formal leaders. This involves:

1. Meeting with local officials (municipal mayor, municipal councilors, barangay captain and barangay councilmen) to:
 - a. Inform them about the project in general;
 - b. Get their reactions and ideas on how the project may be implemented, which in the process results in the clarification of the details of the projects;
 - c. Seek their assistance in choosing the appropriate project site using the above-mentioned criteria within the municipality and/or the barangay; and
 - d. Request their assistance in project implementation, particularly in explaining the project objectives and mechanics of implementation to the community.
2. Meeting with prospective participants in two to three meetings to discuss the project concept, objectives, approaches, methodologies and actual forestry interventions.

E. Collection of information about the community

Simultaneous with the pre-implementation meetings, a community survey is conducted. The survey contains a profile of the following:

1. Biophysical features: topography, climate, soil, etc.
2. Demographic profile: income and sources, farming systems, problems, etc.
3. Socioeconomic picture.
4. Existing organizations and their activities.

In a few places, some members of the community were trained to administer the questionnaire and helped in the actual gathering of community data. The information collected was presented to the community for validation comments.

F. Identification of potential forest technologies by the researchers served as an entry point for community intervention. These are presented to the gathered farmers for comments/reactions, modification and acceptance.

G. Enlistment of participants is a very simple process where the main criterion is willingness to try the forestry technology/technologies identified during the meetings.

H. Training demonstration

A demonstration farm, usually owned by one of the participants, is chosen by the community to show how the identified forest technology works. It is also used to train other interested farmers. A nursery of forest tree seedlings often is established.

I. Assistance to farmers (incentives)

1. Limited planting stocks (seeds, seedlings) of both forest and agricultural crops.
2. Provision of a few farm tools and materials (shovels, pick-mattock, plastic bags, etc.).
3. Technical assistance on technology application which is mainly a "show-me-how" approach, explaining the science of a particular technology, answering specific questions of adopting farmers and discussing their individual observations about their farms.
4. Organizational assistance. This is considered the most critical component of the project, yet often the most difficult to operationalize. The need to form groups among themselves to plan out their activities and how these may be implemented by harnessing each other's help has been emphasized. However, project staff believe that a formal organization must be a "felt" need rather than an induced need. Participants must translate their own concept of unity into actual cooperative undertaking. The project encourages discussion of problems and alternative solutions, including how the solutions may be carried out. It is the hope and ultimate goal of the project that the farmer/participants would eventually organize and be able to exercise the power that springs from an organized community.
5. Linkages with other agencies such as Ministry of Agriculture and Food (MAF), Bureau of Forest Development (BFD) and local officials.

J. Maintenance mechanism

1. At least one FORI technical person is assigned to visit and work with farmers at least one day a month. Where the project can afford it, as in Bohol, the technician stays in the community for about two weeks per month.
2. Research center directors make periodic visits and meet with participants at least once a quarter.

K. Monitoring and evaluation

1. Research centers submit quarterly project reports which are commented on by the Central Office project staff and the comments are fed back to the staff of research centers.
2. Central Office project staff make regular annual visits to the projects for the following purposes:
 - a. Meeting participants to discuss progress, problems encountered, and plans.
 - b. Documentation (video) of work progress and assembly meetings.

Ongoing Project Sites

There are at present 20 project sites. Some of these are described below:

1. Barangay Sta. Cruz, Ivisan, Capiz

This was the first project implemented in 1981. It is a three hectare Leucaena leucocephala (Ipil ipil) fuelwood plantation located in former sugar land donated by the barangay captain to the provincial government. The scarcity of firewood in Capiz is emphasized by its cost, which according to the Provincial Development Staff of Capiz exceeds that of rice.

There are about 40 participants, mostly women, who have organized themselves into a cooperative, with seed money lent by the provincial government.

Cacao (Theobroma cacao) was planted in between rows of Ipil-ipil. Much of the Ipil-ipil was harvested by the participants in 1984 after a strong typhoon which battered several houses. Each participant received at least three poles. The Ipil-ipil were used as posts for the houses being repaired.

The remaining stands provide shade for the growing cacao. Unfortunately, the recent infestation of Ipil-ipil by the psyllid pest (*Heteropsylla cubanna*) has discouraged the participants. Renewed motivational efforts are being intensified.

2. Ginhawa, Pinamalayan, Oriental Mindoro

This is a combination of agroforestry and watershed rehabilitation. The municipal water source is surrounded by titled and untitled farms and public lands. The watershed is practically denuded, resulting in reduced water yield. Since the beneficiaries are the lowlanders who are mostly residents of the town proper, they, through the municipal government, are encouraged to plant trees in the watershed area. FORI has shown, by actual construction, how to conserve water by building two small checkdams. The remaining 18 checkdams will be financed by the municipality.

The agroforestry component, which includes construction of hedgerows to conserve soil and water, is designed not only to improve farm productivity but to restore ample vegetation in the watershed area. The project, which has 20 participants, was the subject of a course (called a practicum) of three senior students at the University of the Philippines at Los Banos, College of Human Ecology from January to March, 1986.

3. Barangay Maypalig, Batac, Ilocos Norte

In what is basically an agroforestry forest, 21 participating farmers plant fuelwood trees on the boundaries of their farmlots, which existed before FORI's acquisition of the area. To contain their expansion, they were allowed to continue tilling their farmlots with areas ranging from 2,000 square meters to three hectares on the condition that they plant trees in boundaries and in a 10-meter band outside their farm boundaries.

Lessons Learned

The project would like to share some lessons learned from various project sites. Many of these are recent experiences, for some projects were started only during the past one to two years.

- A. No two upland communities are identical in terms of environmental and socioeconomic forces affecting their farm productivity, income and living conditions. This emphasizes the importance of correctly determining existing conditions as a basis for identifying forestry technology as an initial development intervention.
- B. Communities have accumulated a lot of experiences with government projects, and unfortunately all of them are sad stories. Some so-called projects started and ended with the first visit of the government worker. As such, it is not surprising that the FORI project was viewed with pessimism.

- C. Many prospective participants adopt a wait-and-see attitude. Only a few will risk adopting the technology. Some will begin adopting the technology only after they have seen that it works on others' farms. It will be extremely difficult to convince farmers to try the technology if it fails in the farms of the risk-takers.
- D. There is a strong temptation and tendency on the part of the project staff at the community level and even among the community members to set up an association formally even during the initial stage of project implementation.
- E. Farmers have their own farming and forestry technologies. An example of this is Manaet, an islet-barangay of Bacacay, Albay, where propagation of bamboo, planting and harvesting of pandan (*Pandanus* spp.) and planting of fruit trees are being done their own way. These indigenous technologies should be documented and used whenever/wherever possible in the project.
- F. Forestry is not a major concern of the uplanders. Rattan, food production and search for additional income are their main concerns. Upland community development projects should be able to integrate forestry into their food production and income-generating activities.
- G. The community capability-building approach cannot be grasped easily by the project staff. They tend to provide the solution rather than motivate the community to seek its own solutions with its resources.
- H. Most researchers have yet to cross the continuum of technology generation and utilization. Many of them are still at the generation stage. Introduction of technology for utilization is still a new, if not an alien, venture.
- I. Implementing a community development project is accelerated once a community trusts the researcher-development staff. One way of doing this is to fulfill commitments made to the people.
- J. Conversational facility in the local dialect is a great help. Many problems and observations are clearly discussed when the project staff can speak in the local dialect.
- K. Frequent regular visits to project sites by the staff will accelerate implementation of the project.
- L. The less difficult in terms of labor and expenses the technology is, the more acceptable it is.
- M. Small incentives such as seeds, seedlings and farm tools given to the participants are big come-ons in project acceptance. This includes the provision of snacks during meetings borne by the project.
- N. Use of the video (Betamax) is very effective as a motivator in attending discussion meetings. It is also a powerful learning tool in showing available technologies and in demonstrating how these have been adopted in other project sites.

- O. Field visits of the project staff from the Central Office not only provide an opportunity to review project progress and formulate future activities, but often it is perceived by the community as a sign of sincerity and seriousness of the government.
- P. Forestry technicians working with the community are often consulted on various community concerns other than forestry. These include crop production, acquisition of draft animals, improvement of water systems, health and nutrition problems, construction of multipurpose barangay halls and other social concerns. The technician must be ready to link the community with other agencies.

In retrospect, the Community-based Forest Research and Development Project attempts to bring the forest researcher to the uplanders, who traditionally were not the object of his work. It also brought FORI, even if in a very small and limited scale, to the people, who just like most lowlanders want to come closer to jumping over the poverty line. In the process, FORI seeks to create an impact on a few of the 15 million uplanders, hoping that these few would help their neighbouring uplanders build their own capabilities as they transform their small farmlots into self-sustaining, productive pieces of assets.

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3.2 PARTICIPATORY PLANNING



Discussing agro-forestry

PEOPLE'S PARTICIPATION IN PLANNING, MONITORING AND EVALUATION

1

Alexandra Stephens

Introduction

If development depends on mobilizing people, then people's participation is an essential element within a system which seeks to bring a better standard of living and quality of life to its people. At the lowest level, participation is symbolized by the presence of token representatives of "the people" at events where decisions are made. Most would agree this does not constitute real participation, but it is amazing how many officials claim to have used participatory methods when this is the extent of their effort.

At a more dynamic level, and a level which is meaningful in terms of mobilizing people towards development goals, participation involves an active partnership between policy makers, planners and officials, and the target beneficiaries of a programme. This usually requires some organization of people into groups which become action-oriented, and eventually take responsibility for their own development.

The 1979 World Conference on Agrarian Reform and Rural Development (WCARRD) sponsored by FAO in Rome gave impetus to this approach. Additionally, the Small Farmer Development Programme (SFDP), which had earlier been initiated in several Asian countries to promote group organization among disadvantaged rural populations, was expanded under a larger umbrella "People's Participation Programme" and is now operating projects in African, Asian and Latin American countries. The focus is on training of group organizers or group promoters, and the formation of small, homogeneous groups around a common activity aimed at breaking the cycle of poverty and indebtedness.

Building on earlier SFDP experience in Asian countries, the People's Participation Programme promotes eight basic elements, considered fundamental to the alleviation of poverty among the rural poor.

Local group promoters/group organizers	Focus on the rural poor
Involvement of NGOs	Small homogeneous groups
Generation of income and employment	Participatory methods
Self organization and Self reliance	Replicability

Details of these elements are given in Annex II.

(1) FAO Regional Home Economics and Social Development Officer.
(Drawings by Kees Putman)

The Meaning of Participation

Since the poor are often unable to exercise rights of participation, special mechanisms need to be developed to facilitate this. The World Conference on Agrarian Reform and Rural Development (WCARRD) recommended a shift in emphasis through a realignment of political power in favour of the poor and other disadvantaged groups. The WCARRD Declaration of Principles and Programme of Action, which became known as "The Peasant's Charter", reaffirmed people's rights of participation (see box). WCARRD resolved to conceptualize and design policies and programmes and to create administrative, social and economic institutions to implement them with special emphasis on the disadvantaged strata.

"THE PEASANTS CHARTER"

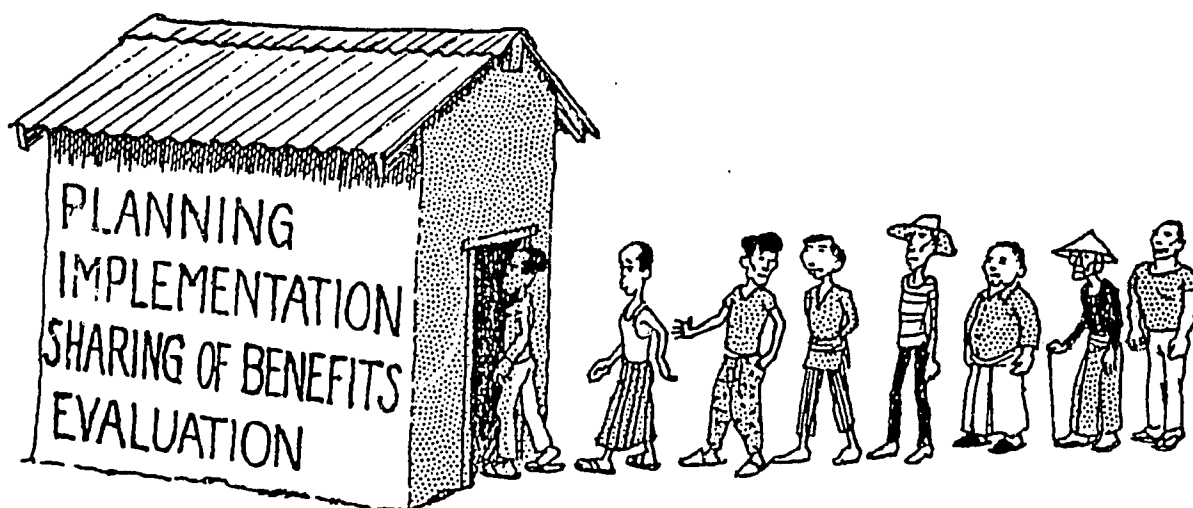
(an excerpt)

"Participation of the people in the institutions and systems which govern their lives is a basic human right and also essential for realignment of political power in favour of disadvantaged groups and for social and economic development. Rural development strategies can realize their full potential only through the motivation, active involvement and organization at the grassroots level of rural people with special emphasis on the least advantaged strata, in conceptualizing and designing policies and programmes and in creating administrative, social and economic institutions, including cooperative and other voluntary forms of organization for implementing and evaluating them."

(WCARRD Report, 1979)



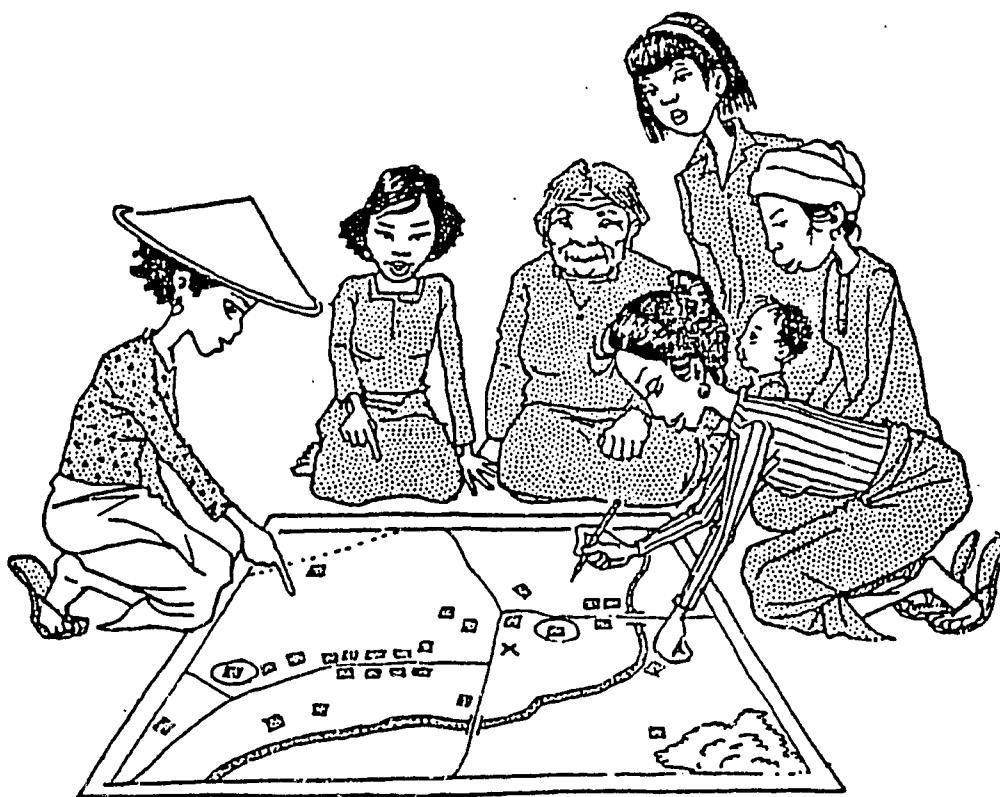
People's participation means that the target beneficiaries of a project or programme take part in all stages of the development process. That is, they participate actively in decision-making for planning, in the process of implementation, in sharing benefits of the project, and in monitoring and evaluation.



Traditional planning, monitoring and evaluation are initiated from the top, carried out for the people, and the results are assessed by outsiders. It remains rare for a truly participatory approach to be applied to development processes. Where it has been used, however, the results increasingly justify the initial added inputs required in terms of time and money. Participation is not an end in itself. It is a means to achieve long term efficiency and effectiveness, cost-sharing, self-reliance and grassroots initiative, and to build leadership and village level organizational capacities. Behind these objectives is the goal of increasing growth with equity - the WCARRD motto. Empowerment is the hidden objective in people's participation programmes which increase awareness and group organization as a means to overcome the various forces which oppress the poor. By giving people a voice in project design and management, we are helping them move towards empowerment.

Participatory Planning in Action

Planning begins with problem identification, and participatory action research is often the first step in participatory planning. Participatory research is a more qualitative approach than the traditional problem-identification and feasibility studies carried out prior to project design. It requires the active participation of the observed as observers in a dual process of data collection and generation, as well as education and conscientization. The emphasis is on increasing participant awareness as they collect and analyse data about themselves and their resources. A simple example of participatory action research may begin with compiling a village map.



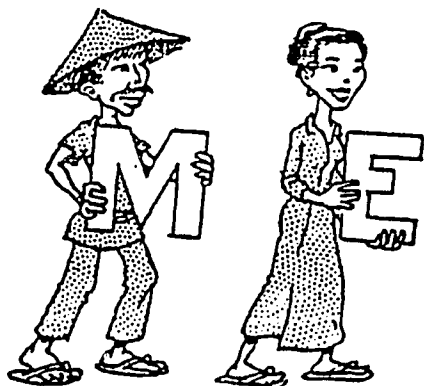
The active participation by all members of a group helps stimulate discussion using a new framework for thinking. A map may be used to help people understand geographical and spatial aspects, and can include a compilation of resources to which villagers have access. This helps identify gaps, and initiates dialogue and discussion with a whole new perspective. In general, it helps make discussion more objective and less emotional.

Participatory planning may also make use of checklists, socio-economic data (translated into meaningful terms and concepts), inventories and other planning tools. The range of choices should be kept broad, so that participants select appropriate plan targets only after considering all alternatives. Influence over their choices should be limited to technical and economic aspects which need to be fully explained, so that the final decision is made in the villager's socio-political context, but based on sound technical advice.

The extent to which plans are written and blueprints are formulated depends on the nature of the undertaking. However, a detailed work plan with task assignments and resource input schedules generally helps facilitate action. The monitoring and evaluation system should also be designed at the planning stage.

Participatory Monitoring and Evaluation

Monitoring and evaluation (M and E) is a management tool which is critical in the whole cycle of development. It needs to be built into the original plans, and resources should be allocated from the start. A monitoring and evaluation system answers questions of:



- relevance
(does the project address our needs?)
- efficiency
(are we using resources wisely?)
- effectiveness
(are the desired results achieved?)
- impact
(to what extent have the project activities brought about changes for the betterment of individuals and/or community?)

Monitoring and evaluation are not the same. Monitoring is a continuous process, on-going throughout the life of a project or programme. It involves overseeing or periodic review of each activity at every level of implementation to ensure that:

- inputs are ready on time
- work plans are followed as closely as possible
- adjustments can be made, and corrective action taken where necessary
- people who need to know are kept informed
- constraints and bottlenecks can be foreseen, and timely solutions found
- resources are used efficiently

In other words, monitoring is a surveillance system used by management or those interested in overseeing the management of resources to ensure everything goes as smoothly as possible and according to plan.

Evaluation, on the other hand, is carried out either at periodic intervals (quarterly, annual) or at some cut-off point in the programme or project, often mid-term, and/or "terminal" evaluation, towards the end of a project. Evaluation concerns the assessment of the effects of the project on the intended beneficiaries. These may include benefits in the medium term, and in the case of an evaluation carried out ex-post (long after project completion), the full impact of the activities and inputs may be assessed. Negative results are included in evaluation assessments, and these may include environmental damage, exploitation of labour, or loss of status, prestige, rights and independence.

Participatory monitoring and evaluation (PME) together form a system which involves the people, designed by and for the use of the beneficiaries themselves. Participatory monitoring involves measuring, recording, collecting, processing and communicating information to assist both project management personnel and group members in decision-making. It is a continuous feedback system, on-going throughout the life of a project or programme, while participatory evaluation uses monitoring data as the basis for systematic analysis by project management and group members. This enables them to adjust, redefine policies or objectives, reorganize institutional arrangements or re-deploy resources as necessary.

There are those who describe the act of having people fill in forms as "participatory monitoring and evaluation". There is nothing participatory about filling in a form designed by some official or other. PME requires the involvement of the people in:

- deciding what areas to monitor and evaluate
- selecting indicators for M and E use
- designing data collection systems
- tabulating and analysing data to be used in analysis
- using PME information for their own purposes,
e.g. planning an income-generating project.

Figures 1-3 show some examples of PME charts used in SFDP projects in Asia.

Figure 1. Chart used for monitoring level of accomplishment of tasks.

GROUP PROGRESS REPORT FOR JUNE










	Tasks Done	Supplies Purchased	Meetings Held	M and E Operating	Accounts Maintained	GO/GP Visits
						
						
						
						
						

Figure 2. Task monitoring sheet (from a wall chart).

TASK MONITORING SHEET					
GROUP : <u>Meijor Grendhuit Group</u>		PROJECT : <u>Agrie. Peds.</u>		YEAR : <u>1988</u>	
JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Cut fence posts.	Erect fence and treat posts with E. oil	Weeding	Weeding	Harvest	Repay loan to bank
		Watering	Watering	Dry gr. nuts	Distribute profits to group
Dig holes for posts	Plough and form mounds	Check and repair fence and gate	Check and repair fence and gate	Negotiate selling price and check local market price	Meet to decide on new work plan
Order wire staples, wire strainer	Purchase fertilizer	Pest control	Apply fertil. izer.		
Plough the land	Apply pre-planting fertilizer	Pile earth on mounds	Pest control		
Dig drains	Plant ground nut seed		Pile earth on mounds		
Cut palms for shade.	Collect bank loan		Purchase packaging for harvest		
Apply for bank loan			check market		
Accounts + Records	Accounts + Records	Accounts + Records	Accts + records	Accounts + Records	Accounts and Records
					



This chart may be filled in as tasks are completed, using a simple two-colour coding system, or as above,  means work satisfactorily completed;  means work remains to be done or is not satisfactory.

Figure 3. Chart for monitoring services to villagers.

TECHNICAL SUPPORT MONITORING CHART													
Group:		Village:									Year:		
Staff	Visits	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Group Organizer	• ● •												
Home Ec. Extension	11 21												
Rural Credit Officer	✓												
Veterinarian	3												
	3												
	4												
	-												

There are many ways to fill in this chart. It depends partly on the literacy and numeracy skills of group members, but the above provides some ideas. Colour codes may make it easier. Rating scales increase the accuracy of data when points are awarded on, say, a 1-5 scale. There are many variations of this kind of chart, which may be displayed on a wall or bulletin board, or maintained in a recording book.

Whatever a group decides to monitor, it is necessary to select appropriate indicators that can be used to measure change. Economic indicators are generally easily applied in terms of numbers, yields, mandays etc. Social indicators require more careful selection and application to ensure the validity of data.

Reporting and Use of Research and PME Data

When data is collected, tabulated or generated for use by village level planners or partners in planning, it must be meaningful even to those with the least formal education if their participation is to be ensured. Statistics, tables, percentages and abstract concepts are often quite meaningless to non-specialists and the less educated members of a planning team. Creative people however can interpret data in simple terms that can be presented graphically for discussion.

Some common forms of simple presentation of data are seen in popular magazines, newspapers etc. They include pie charts, bar graphs, pictorial graphs, and so on. Examples are shown in figures 4 and 5.

Figure 4. Pie, bar and line graphs showing a 30 per cent vaccination rate.

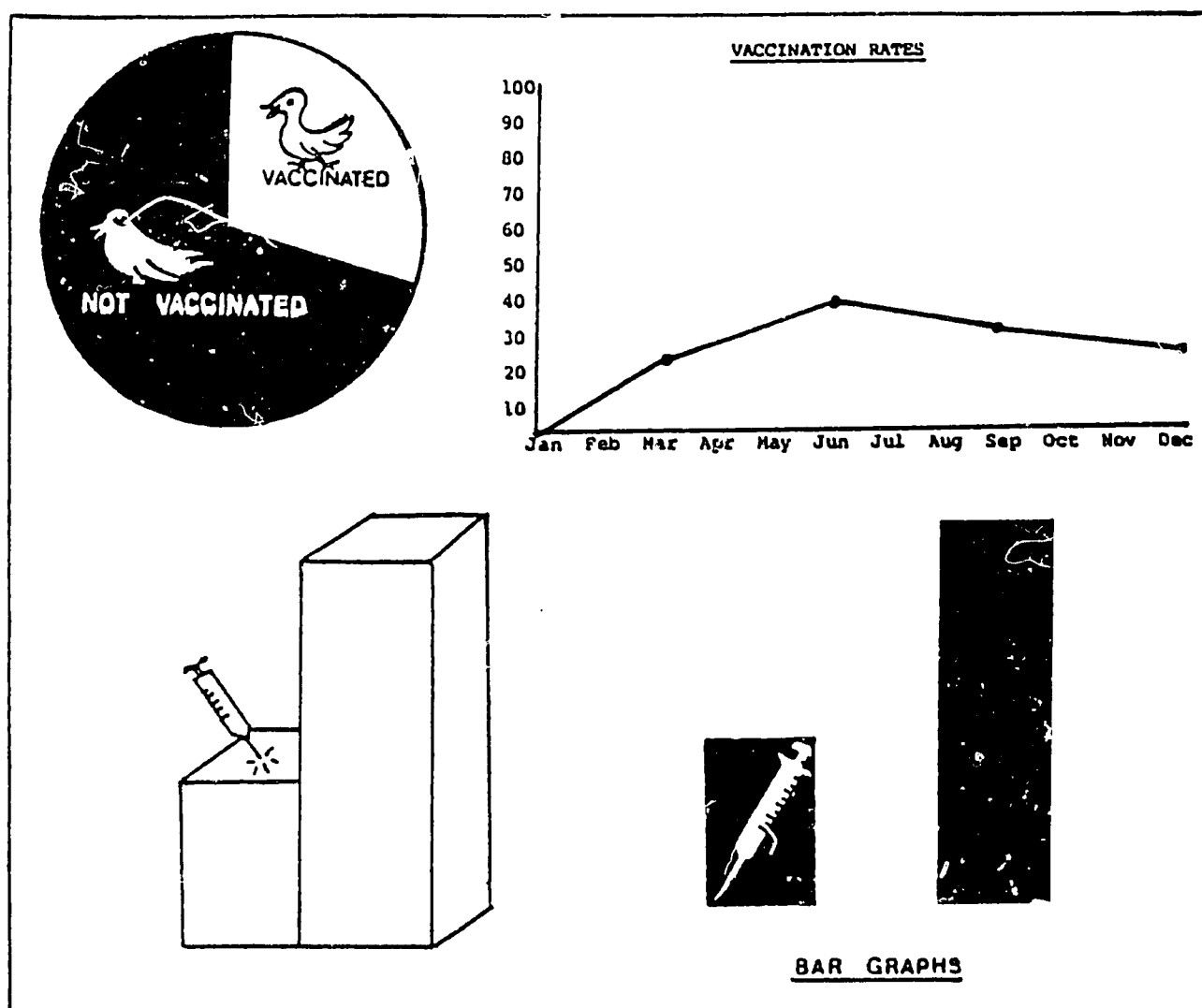
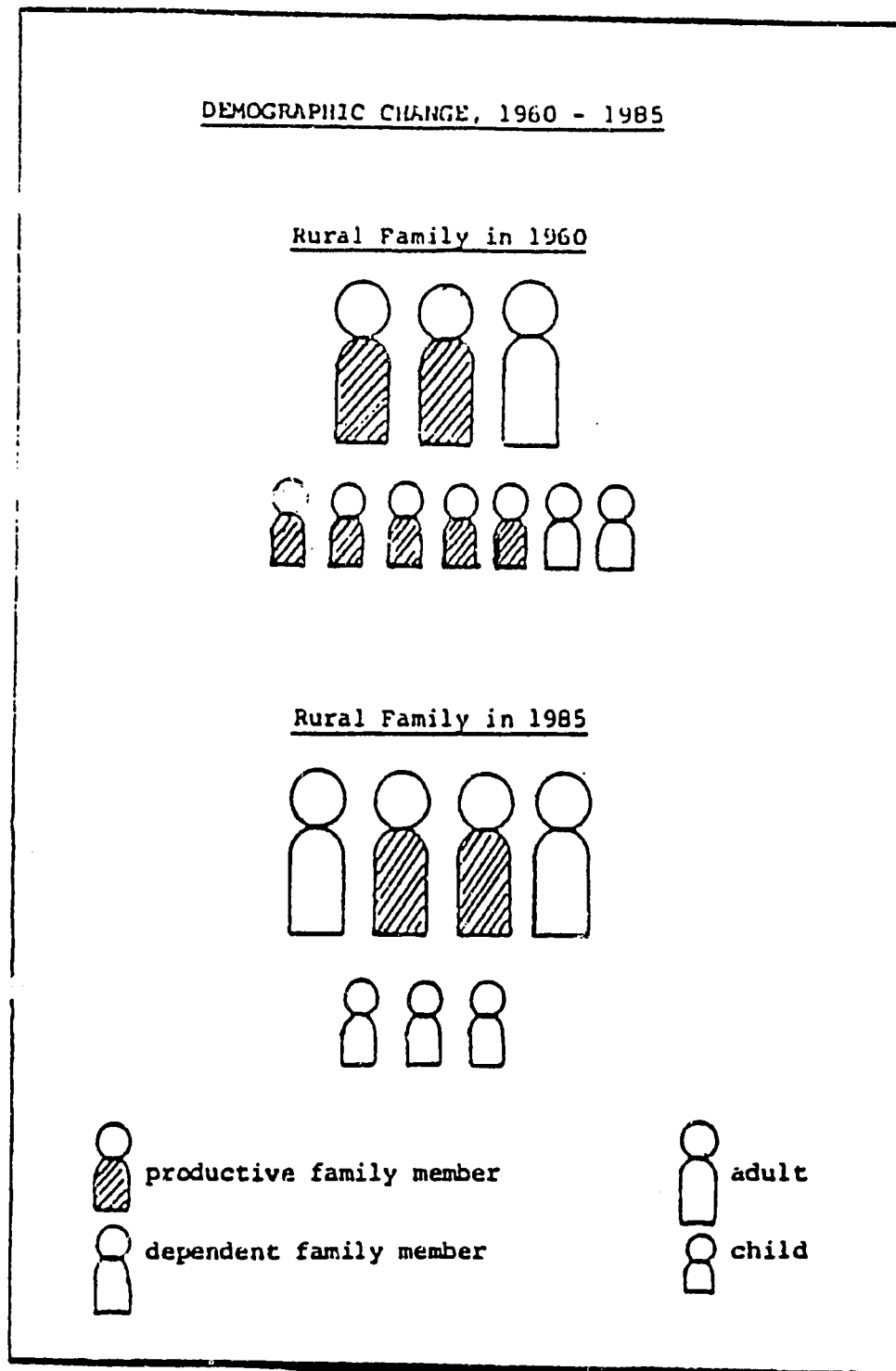


Figure 5. Graphic representation of demographic change over 25 years.



Graphic or schematic diagrams are often easier to interpret than traditional statistics, but there is a danger that accuracy may be sacrificed for simplicity. It can be misleading to over-simplify, and this has sometimes led to serious planning errors and incorrect evaluation analysis. A compromise must be reached which sufficiently meets the standards of technocrats and economists, but also meets the needs of people to facilitate intelligent participation in their own development processes.

Applications

The above sections of the paper provide some ideas for encouraging people's participation in planning, monitoring and evaluating their own development. In SFDP projects these have been adapted and developed to meet hundreds of different needs, and many SFDP groups have invented specific charts and methods which meet their own needs and interests. Each is relevant to the user, but many also provide valuable information for higher level planners, policy-makers and for donors providing technical cooperation.

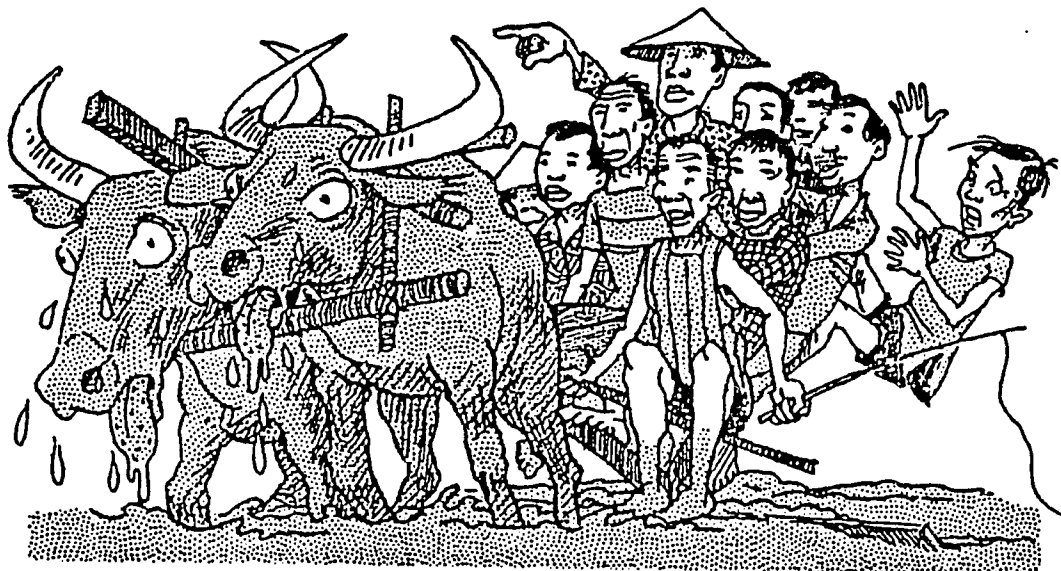
Participatory planning, monitoring and evaluation requires an approach on the part of facilitating personnel, which encourages people's participation. The following therefore are necessary:

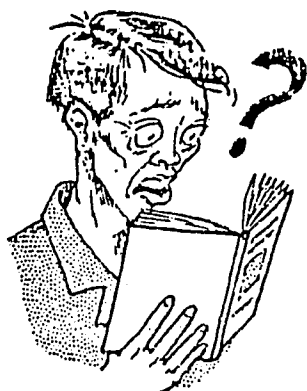
1. Use active rather than passive and practical rather than theoretical methods.
2. Begin with an activity which is of interest to all, e.g., a village map.
3. Use small, socially and economically homogeneous groups where there is mutual trust, cooperation and concern.
4. Provide meaningful data and information, concrete ideas and simple concepts.
5. Facilitate access to more information through participatory research, PME, and liaison with other agencies.
6. Conscientize the group, to raise political awareness and increase self-reliance through group action and initiative.

The question of access to the information generated and gathered in participatory planning, monitoring and evaluation also needs consideration by members of the group. Questions of confidence and trust must not be threatened by misuse or abuse of information. The primary recipients of the data, the group members themselves, are the rightful owners, and anyone else should have access only with the consent of the group. In all cases, the purpose for which the information is to be used must be made explicit, and its use by beneficiaries maximised. Where information is fed through reports to agencies, organizations or individuals who control inputs, the implications must be made clear to group members. For the same reasons that many wish to withhold information on income from the tax collector, so they may wish to retain other information.

Reporting from a participatory planning, monitoring and evaluation system thus may be a highly controversial matter, with economic, political and social implications. The amount, type, form and frequency of plans and reports prepared by small farmer groups is a matter for much in-depth discussion.

To the extent that group discussions on analysis and interpretation of data is only fully participatory if each member understands the data, group facilitators have a responsibility to help use data meaningfully. This is the subject of another paper, another time.



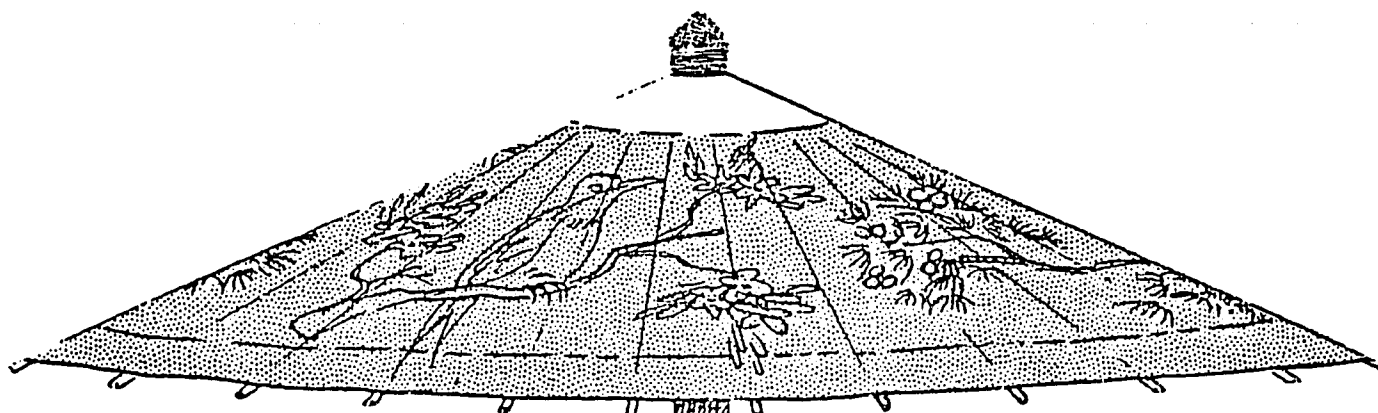


Annex I

GLOSSARY OF TERMS USED

Effects	Result of the use of outputs generated.
Evaluation	An assessment, as objective as possible, of how the project is going, how well participants are doing, and what effect it is having on intended beneficiaries.
Impact	Outcome of the results of activities, net effect of activities on economic and social status.
Inputs	Resources, human and material, provided to a project in order to achieve planned objectives.
Monitoring	Periodic (time to time) or continuous surveillance by participants, management or donors in a project.
Objectives	Intended achievement, desired results.
Outputs	Goods, products, services or changes generated by project activities, aimed at achieving planned objectives.
Participatory M. & E.	Monitoring and evaluation which is carried out by the project participants, primarily for their own use.
Planning	Determining outline for achieving specified and objectives.
System (M & E System)	Parts arranged in order for use in measuring progress, and as a tool for analysing data and using it in decision-making.
Target beneficiaries	Identified group of people intended to benefit/gain from the project.

Annex II



Local Group Promoters/Group Organizers

The recruitment and training of suitable Group Promoters/Group Organizers as catalysts for group formation and guidance should be seen as a temporary input for about 2 years. GP/GOs should live in the target area under similar living conditions as the beneficiaries.

Focus on The Rural Poor

PPP Projects are designed to focus on the rural poor, those individuals living at or below the subsistence level such as smallholders, tenants, small fishermen, artisans, tribal minorities, and include women, men and children.

Involvement of NGOs

Where feasible, non-governmental organizations (NGOs) should be given a primary role in project implementation in collaboration with key government agencies. Experience has shown NGOs more operationally flexible, and more able to adapt quickly to local needs.

Small Homogeneous Groups

Participation of the rural poor is most effectively promoted through the formation of small, informal and homogeneous groups of 6 to 15 members who share common social and economic levels, and are willing to organize around a common activity which addresses a shared problem or interest.

Participatory Methods

Participation by the beneficiaries in all project activities is essential. This includes problem identification, planning (decision-making), implementation, monitoring and evaluation, and feedback interpretation. The methods used to encourage participation are not natural - they must be learned, and training must be provided over suitable periods of time by qualified personnel.

Self Organization and Self Reliance

For long term effectiveness the principle of self help organization should be safeguarded by developing leadership, managerial capability and mobilization from within the group. Project partners should themselves select their members, leaders, office bearers and functionaries, and decide on their own rules and activities. Undue dependency on outside assistance should be progressively eliminated.

Replicability

Projects should be small in scale with a high potential for replication. Initial activities should focus on strengthening the group economically and socially, with the development of effective linking mechanisms and preferential policies for the delivery of inputs and services to project beneficiaries. The promotion of low-cost initiatives which are financially sustainable have the highest potential for replication. Investment-oriented activities may follow later.

Generation of Income and Employment

Self-identified income-generating and/or employment activities will create economic benefits which will facilitate self-reliance and long term viability. Group savings and productive investment should be encouraged, with credit provisions where necessary.

PARTICIPATORY PLANNING OF FORESTRY EXTENSION PROGRAMMES

1

Peter Hoare

1.0 SCOPE OF THE REPORT

The purpose of this report is to describe processes which can be used in participatory planning of forestry extension programmes at the local level, and to provide case studies illustrating their use. The term participatory planning means that residents in the project area and village level extension workers have a role in decision making concerning the allocation of resources in forestry extension programmes.

The participatory planning processes described here are based on over 20 years of development experience with smallholder agriculture and tree crops in the Asia-Pacific Region (2) and the recent experience of the German Agency for Technical Cooperation of the Federal Republic of Germany in goal-oriented project planning.

The extension programme planning processes are illustrated by two case studies. The first study concerns the planning of a three-year programme to increase incomes of rural communities dependent on the indigenous tree crop of tea in the highlands of North Thailand. The second study, from Iloilo Province in the Philippines, is about agricultural encroachment on forest lands. This problem is being tackled through the granting of long-term land stewardship contracts and the introduction of new agroforestry technology for upland cropping and soil conservation.

These case studies illustrate local extension programme planning and implementation processes and the level of staff training needed to implement improved agricultural and forestry technology on land of marginal productivity. The extension programme planning processes are described in considerable detail in the first case study, as the main focus of this consultation is the planning of forestry extension programmes.

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 - (2) The participatory planning and implementation processes referred to, are described in the Papua New Guinea Extension Manual compiled by Lamrock (1966); publications by the late Joan Tully in 1973 from the Pacific Basin; and Crouch (1980) and Hoare (1987) from Thailand.

2.0 OUTLINE OF THE PARTICIPATORY PLANNING METHOD

The participatory planning processes should form a continuum, or "rolling planning process", which can be initiated during project preparation or used during project implementation to prepare work plans prior to the annual allocation of budget. The programme objectives and inputs should be reviewed annually as to their suitability for solving rural problems and their compatibility with government policy and the project environment.

The planning method includes: a) the participation analysis, b) the problem analysis, c) the objectives analysis, d) the development alternatives analysis, e) the project planning matrix, and f) the preparation of yearly implementation plans at the annual planning workshop.

Equally important elements in the planning method are the interdisciplinary planning approach and the opportunities provided for the project team to participate in the planning process through the use of large posters recording the structured village group work, and the pinboard in the planning office with movable cards.

2.1 The Participation Analysis identifies all institutions and interested parties involved in the programme.

2.2 The Problem Analysis includes the following processes:

- a) Problem census meetings with rural communities in the project area to identify and rank their main farming problems. This brings farmers into the planning process and gives the planning team an understanding of the whole farming system.
- b) Rural household enterprise analysis for selected households with high, medium and low resources of land, labour and capital. This rapid analysis includes the off-farm enterprises which often include harvesting of (illegal) forest products.
- c) Problem solving meetings with rural communities and the planning team to explore possible solutions to the problems identified in the problem census meetings.

2.3 The Objectives Analysis is based on data from the problem solving meetings and involves investigation of forestry and agricultural development opportunities and alternatives with project staff and farmers. The output of this process is the objectives tree, in which the hierarchy of problems in the problem tree is transformed into a hierarchy of objectives.

2.4 The Alternatives Analysis uses the following criteria when testing and selecting alternatives:

- a) The expected technology improvement
- b) The gross margins analysis comparing the inputs with the new technology and the existing farming system
- c) Available extension staff and training needed
- d) National development priorities
- e) Available credit supply and budget support

2.5 The Project Planning Matrix is an overall summary description of the project. The chosen project activities after the alternatives analysis are derived from the objectives tree, and transferred to the planning matrix. This matrix indicates the sequence of events and development priorities. Unit costs for the different activities provide the basis for budgeting the expected costs of the programme.

2.6 At the Annual Budget Planning Workshop, extension plans prepared following the processes 2.1 to 2.5 are considered by management. If they fit the development policies and priorities they are transformed into a yearly work plan in which the activities and supporting budget are time-phased to the nearest fortnight.

3.0 THE FIRST CASE STUDY - PARTICIPATORY PLANNING PROCESSES FOR AN AGROFORESTRY EXTENSION PROGRAMME AT THE LOCAL LEVEL

3.1.1 The Setting

Tea is indigenous to the highlands of Northern Thailand, where it has been the most important smallholder tree crop for over 100 years. It is processed by Northern Thai households into "miang" or pickled tea, which is consumed as a masticatory. Most of the smallholder tea gardens in Northern Thailand were established over the past two centuries, using the indigenous Assam tea variety. The method of developing a tea garden for miang or pickled tea production was simply to thin the forest trees and increase the tea tree density by direct planting of tea seed at a spacing from 3 to 5 metres.

FAO data on world tea production show that Thailand has the lowest yield of 167 kg/ha of made tea from an estimated area of 10,000 hectares of tea gardens. Cattle don't eat tea and cause minimal damage when grazing in gardens of mature tea trees. About 10-15 kg liveweight gain per hectare can be produced per year by the yellow-Asian cattle grazing native pasture at stocking rates of about one animal to 3 or 4 hectares.

The farming system could be described as an extensive agroforestry/silvopastoral system, where the forest trees have been depleted at varying rates depending on the demand for fuelwood for tea processing and cattle grazing pressure, which affects the natural regeneration of the forest species.

The farming system has provided sufficient income to meet the basic needs of pickers and owners of tea gardens, and proved to be environmentally sustainable until recent years. Now, as fewer of the younger generation of Northern Thai consume "miang," there is a need to change to either black or semi-fermented green tea production when the bud and young leaves are plucked. This has resulted in a greater demand for fuelwood in some areas for processing the "Pouchong" and "Oolong" semi-fermented teas of special flavour and taste, which are popular in Taiwan, and Fukien in China.

About 80 small household-operated semi-fermented green tea "factories" were established in Wawi sub-district in the Thai-German Highland Development Programme area in Chiang Rai province in the late 1960s and 1970s. The investment in locally made equipment for panning or rolling was as low as \$2,000 (US) per household. The average production of tea per factory is only about 10 tonnes per year.

3.1.2 The Institutional Setting

There are many government and non-government development programmes in the highlands of North Thailand. There is the Royal Hilltribes Project promoting opium replacement crops, such as off-season vegetables, and developing the marketing chain with the participation of the private sector. The government agencies include the resource-oriented Royal Forest Department and the Land Development Department in the Ministry of Agriculture and Cooperatives. Government opium-crop replacement activities are coordinated through the Office of Narcotics Board; and the people-oriented policies are implemented mainly through the Hilltribe Development and Welfare Division of the Public Welfare Department.

In addition, non-Government organizations, including several Christian missionary groups, are active in hilltribe villages. The private sector has also promoted highland off-season vegetable production along major roads into the highlands.

3.2 The Participation Analysis

The output of the participation analysis is a list of all interest groups and institutions participating in or affected by the project. For a non-government organization, the number of interest groups would normally be less than in the following example of the Thai-German Highland Development Programme, where the main role of the counterpart agency was to coordinate opium-crop replacement activities in the project area.

The importance of this analysis should not be underestimated, and some "brainstorming" may be needed. For example, one outcome of the first activity in the tea development programme (Ref. section 4.6) was the need to involve the Ministry of Commerce as an active participant to set quality standards at the provincial and national levels. About 80 percent of the tea from the 73 factories entered in the Wawi tea competition was judged to be good quality tea. However, the winners of the tea competition were selling their tea as a low-quality mixed grade because there was no attractive price premium for quality tea.

In the first analysis the following participants were identified:

Active Participants:

- owners of tea gardens
- owners of Wawi tea factories
- tea pickers and factory workers
- owners of grading and blending factories buying Wawi tea
- Hilltribe Development and Welfare Division agricultural extension staff
- Office of Narcotics Control Board (ONCB)
- Thai-German Highland Development Project (TG-HDP)
- Royal Forest Department (RFD)
- BAAC (Bank for Agriculture and Agricultural Cooperatives)
- NIPC (Northern Industrial Promotion Centre)
- Mindee, Boonpratan, and Royco/Raming estates (for placement training of extension workers).

Other Participants:

- DAE (Department of Agricultural Extension)
- Ministry of Commerce (regulates tea imports, and sets some purchase prices)
- Faculty of Agriculture, Chiang Mai University (tea research and extension training)
- Department of Agriculture (tea research)

Expected Beneficiaries:

- tea growers
- owners of Wawi tea factories
- tea pickers and factory workers in Wawi
- owners of the tea grading and processing factories in Chiang Mai province which buy Wawi tea.

Others Affected:

- residents in tea growing villages in Wawi not directly involved in the tea industry
- Bangkok tea buyers
- tea growers in other districts such as Mae Salong and Papae producing semi-fermented tea in competition with Wawi tea
- the Tea Industry Promotion Group (mainly factory owners)

The interests and views of the various groups differ considerably, and the planning team must decide which viewpoints will be given priority in deciding the core problem and the hierarchy of problems in the problem analysis.

3.3 The Problem Analysis

In the problem analysis the viewpoints of as many of the active participants, other participants, and expected beneficiaries as possible are solicited and incorporated. The problems are expressed as negative statements (Fig. 1).

The problem census technique can rapidly identify and rank the major agricultural and forestry problems of rural communities. In the problem census meeting the farmers are invited to form groups of their own choice, ideally from 5 to 7 people. The extension officer gives the frame of reference. Group recorders are asked to note the main points raised by each group on large sheets of paper during about 40 minutes of group discussion. The records of each group are then displayed to the whole meeting, and the large meeting then ranks the points in order of importance. The process takes about 2 hours, and should be completed in a number of villages if there is a wide range in household resources of land, labour and capital in the project area.

The topics for discussion by farmers in the small groups can be largely controlled by setting a frame of reference for the meeting. During the planning of a project in a new area a broad frame of reference should be used, such as, "What are your main (farming) problems?" This extension planning technique facilitates the participation of farmers in the planning process and provides important information on the problems of the whole farming system.

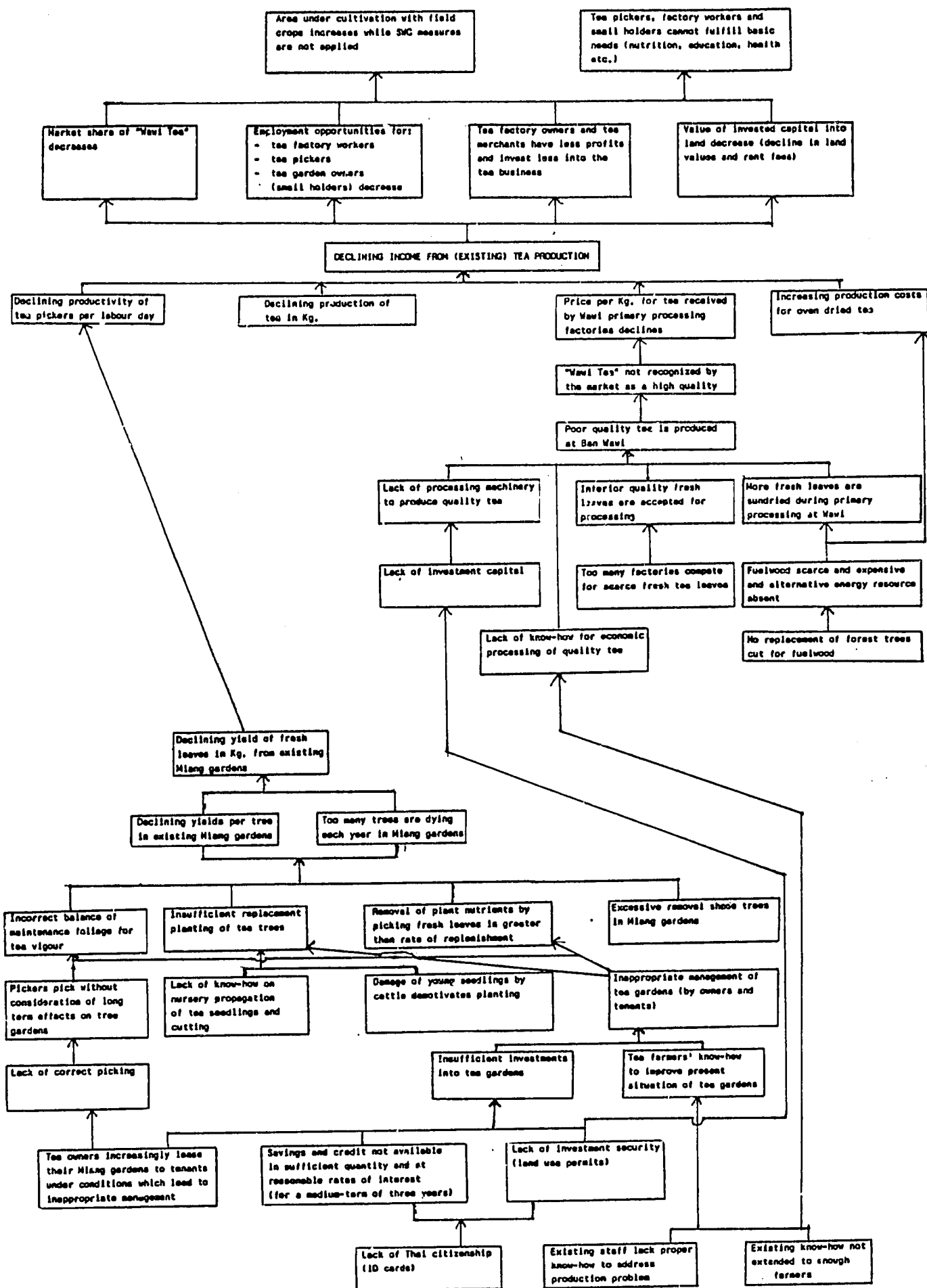
In this case study, problem census meetings had been conducted by change agents two years previously and a number of community development projects including water supply improvement had been started.

A baseline survey had also shown the economic importance of tea to the villages. The meeting participants included owners of tea gardens, owners of tea factories, and tea pickers. The frame of reference was therefore narrowed to, "What are your main problems with tea?"

Problem census meetings were followed by rapid household enterprise analyses of the three main groups of participants to determine the areas, tenure status and green leaf yields of tea gardens; the inventory of equipment and output of the tea factories; and the quantity of green leaf picked per day and the price received.

The consensus of the meeting in the largest village, Ban Wawi, was as follows:

Fig. 1. PROBLEM TREE-BAN WAWI TEA.



Ranking of Problems (3 groups, n = 3)

- 1) The lack of money to improve old tea gardens, establish new gardens, and improve tea processing. (n = 3)
- 2) The quantity and quality of the tea leaf is declining at Ban Wawi annually as the maintenance foliage is removed and the rate of removal of plant nutrients exceeds the rate of replacement. (n = 2)
- 3) The low price received for tea processed by the factories of Ban Wawi, and the low price received for green leaf by the owners of tea gardens. (n = 2)
- 4) The farmers do not have land rights and the tea gardens are still officially classified as reserved forest. The owners of tea gardens are thus hesitant to invest money in improvement of tea gardens (n = 2)
- 5) The present Assam variety of tea can produce good quality green tea, but the highest prices are commanded by the smaller leaf of the Chinese and Taiwanese varieties. These new varieties are desired for future plantings. (n = 2)

The problems from the problem census meeting were further defined as follows in the large group discussion.

- 1) There is a lack of money to invest in the tea industry and a low price received for green leaf. The owners of the tea gardens explained that they are selling a perishable product and must pick the tea leaf as soon as it is mature. Also, the tea factories do not have the capital to invest in improved equipment for processing quality tea.

The owners of tea gardens need cash payment on the day green leaf is delivered to the factory and accept 5.50 baht per kilogram in cash for the first flush of tea ("hua pee"), when the full price is about 6 baht per kilogram (8 percent discount).

Both the owners of the tea factories and the owners of the tea gardens said that they would be happy to pay 14 percent interest per annum on a loan for a term of three years. They would be willing to accept group responsibility for repayment if it were possible through the Bank for Agriculture and Agricultural Cooperatives (BAAC). The purchase of fertilizer for rejuvenation of old tea gardens would receive priority, and the extra income generated from the increased quantity and quality of leaf would then be reinvested in the planting of new gardens.

- 2) Tea quantity and quality is declining and prices are low. At the meeting the decline in quantity of tea from 1,200 tonnes to 400 tonnes over the past 10 years was identified by the meeting participants as a major problem. They believed this problem could be solved by using fertilizer each year on the old tea trees. They considered that this would result in a substantial increase in leaf production in the second and third years after application, and also that the planting of new tea gardens would be necessary.
- 3) There are no land use rights. There are some institutional problems for the Wawi tea growers to obtain legal tenure to their tea gardens. Citizenship is a prerequisite for legal land tenure in Thailand, and the majority of tea growers are recent migrants from Yunnan and hilltribe villages in Burma. Some are remnants of the Koumintang World War II army. The tea gardens also are still classified as forest reserve, even though the area is mostly deforested. A substantial part of the tea gardens are on slopes over 50 percent, which according to RFD land use criteria should be reserved for forestry.

The ideas of the owners of the grading and blending factories buying Wawi tea, as well as the staff of Government development agencies, were also solicited. After due consideration of all of these varied viewpoints and the TG-HDP objectives, the core problem was identified by the planning team as "the declining income from existing tea production." The four main causes of the decline in income, which affected all groups in the tea industry, were:

- 1) The declining productivity of tea pickers in kilogrammes of green leaf picked per worker day. They are paid on a piece rate (2 baht/kg).
- 2) The declining yield of green leaf per unit area, in kilogrammes, from the old tea gardens.
- 3) The decline in price per kilogramme for processed tea received by the tea factories.
- 4) The increasing costs for processing tea, (e.g. the increasing cost of fuelwood).

The inter-relationship of the problem, and the hierarchy of causes and effects are shown in the problem tree in Figure 1. The social and economic effects of the declining income from tea are shown above the core problem. The result is reduced employment opportunities and some tea pickers, factory workers, and smallholders need to seek employment elsewhere.

The first attempt at the problem tree was translated into the Thai language by the extension staff, who discussed and revised it with farmers. The TG-HDP project management staff also carefully examined the cause-and-effect relationships in the problem tree, as it is important that the logic in this first planning step is sound.

3.4 Objectives Analysis

The objective tree is derived from the problem tree by rewording the negative statements to become positive statements and objectives while retaining the same hierarchy of cause-effect relationships (GTZ, 1978). A short explanation is provided for some of the points from the objectives tree shown in Fig. 2. The left branch of the objectives tree is concerned with increasing the quantity and quality of the green leaf picked from the tea gardens, and the right branch with the improved tea processing and marketing.

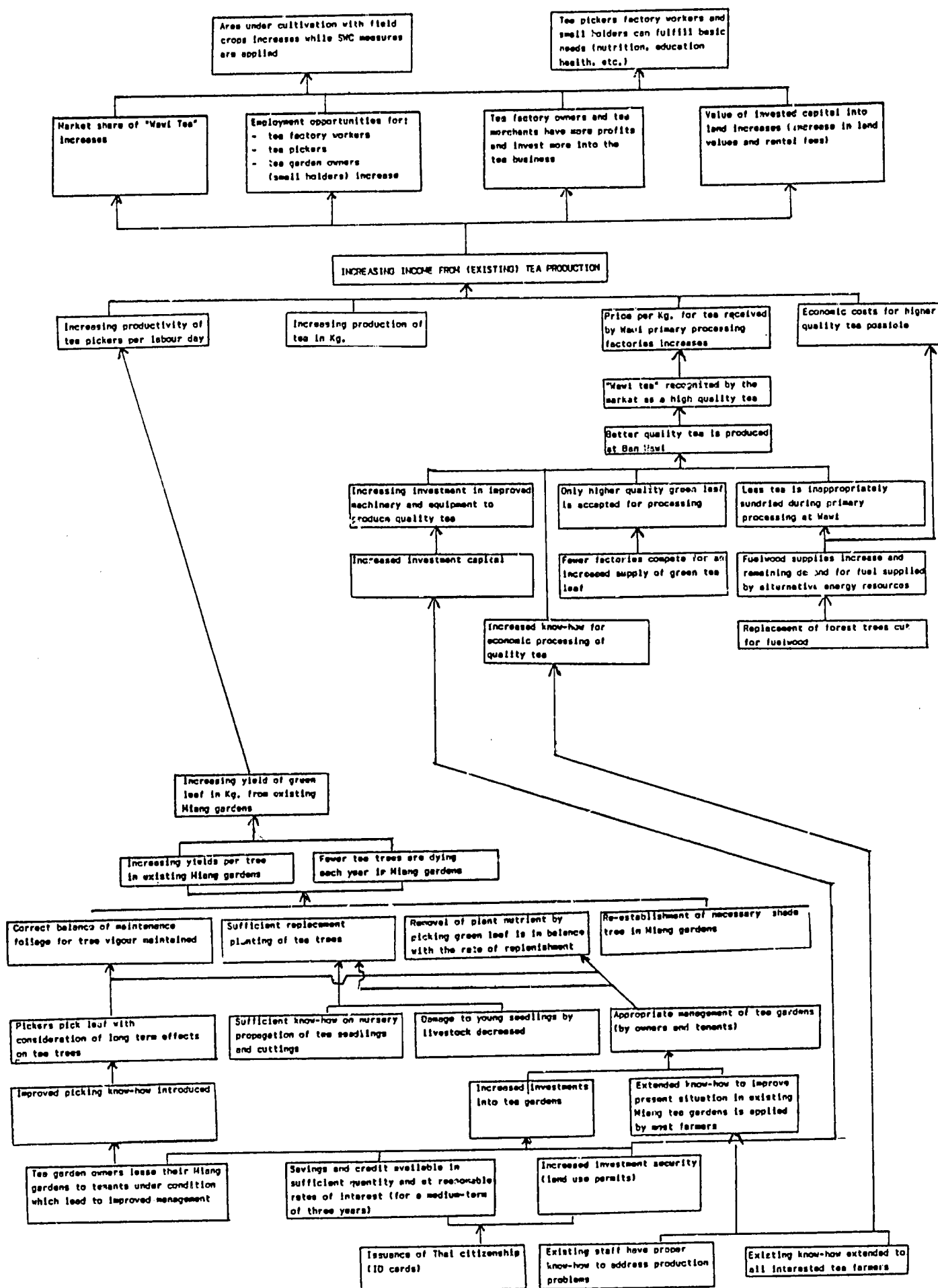
The Improved Production Approach

- a) Extended know-how to improve the present situation in existing miang gardens is applied by most farmers. Meetings with Wawi farmers showed that a number of owners of tea gardens are interested in applying fertilizer and improved management practices to their old tea gardens, following the experience of one innovative farmer in the tea group.
- b) Sufficient know-how in nursery propagation of tea seedlings and cuttings is needed. Even though many of the farmers have made their living from tea all their life, many only know the method of direct seeding for tea propagation. They lack knowledge on nursery propagation methods.
- c) The correct balance of maintenance foliage for tree vigour must be maintained. As yields of green leaf have declined, pickers have out of necessity picked the older, low quality leaf, which is part of the maintenance foliage for the tea tree. The removal of maintenance foliage increases the mortality of the old tea trees. This older leaf and stalk is in turn a major reason for the low price received by the factory owners for their processed tea.
- d) Necessary shade trees must be re-established in old tea gardens. The complete removal of shade trees in many of the older tea gardens surrounding Ban Wawi has led to an environment much less favourable for the establishment of new tea. The lack of shade also results in a higher mortality of mature tea trees during the long five-month dry period.

Improved Processing Approach

- e) Replacement of forest trees cut for fuelwood: The cutting of forest trees for fuelwood has resulted in the almost complete deforestation of Upper Wawi. Even though a programme was begun 2 years ago to encourage Wawi farmers to plant fuelwood trees, the rate of cutting is still much greater than replanting. Within 10 years alternative energy sources for tea processing will be needed due to the scarcity of fuelwood.
- f) Increasing investment to improve machinery and equipment to produce quality tea: At present most of the Wawi factories lack equipment for controlled withering and ovens for quality drying of tea.

Fig. 2 OBJECTIVE TREE - BAN WAWI TEA.



- g) Recognition of Wawi tea by the market as a high quality tea: At present Wawi tea has a reputation as a poor quality tea. The Bangkok buyers complained in 1985 that sugar was being added during processing to increase the weight of tea.

3.5 Discussion of Development Alternatives

There are two main branches to the objective tree (Ref. Fig. 2). Within this framework the following factors were considered in the preparation of the three-year tea improvement plan:

- 1) The available technology to increase the production of green leaf and improve the quality of the processing.
- 2) The tea development priorities given by the Ban Wawi tea industry group and the owners of the grading and blending factories which buy Wawi tea
- 3) The gross margins for the new technology
- 4) The available trained staff to implement a tea improvement programme
- 5) Discussions with TG-HDP Management on policy, tea development strategies, and the facilitation of credit supply.

3.5.1 The Available Technology

The main reason for low Thai tea yields is the low tea density in the older tea gardens. The Royco/Raming estate yield of black tea in North Thailand is about 1,150 kg/ha with the indigenous Assam tea variety. It is at a similar altitude to Ban Wawi, but there is a plant density of over 6,000 trees/ha on the estate compared with only 300 to 400 in old tea gardens.

The consensus of the tea producers was that the most rapid way to increase the incomes of tea pickers, owners of tea gardens and tea factory owners is to apply fertilizer and improve management of mature tea trees. This results in a small increase in yield in the first year, but in a doubling of yield within 2 to 3 years, provided there is careful management of pickers.

The gross margins analysis showed the following break even periods for selected components of the tea improvement programme.

- 1) One and a half years for the application of fertilizer to mature tea trees with improved supervision of tea pickers.
- 2) Two years for a household tea nursery for 5,000 tea seedlings with half of the seedlings planted by the farmer and the rest sold.
- 3) Seven years for a new planting of terraced high density tea.
- 4) Five years for a block planting of fuelwood trees for sale to tea factories instead of the present low density interstitial plantings.

The objective of the household nurseries is to increase the supply of quality tea seedlings in villages. At present the seedlings cost 12 cents (US) each from estate plantations.

3.6 The Logframe

The specific goals of the tea improvement programme are to reverse the yield decline of green leaf in Wawi sub-district by 1990 and to market about 10 percent of the made tea at higher grades and higher prices than at present. The objectively verifiable indicators to determine the attainment of these goals will be the quantity and quality of tea sold by the 80 small factories in Tambon Wawi. A survey will be required each year of the amount, grade and price of tea sold during the 3-year period; and the monitoring of yield changes in old tea gardens, and of the areas and survival rates of new tea plantings.

A description of the major activities planned in the logframe to achieve these goals follows:

- 1) Arrange the first tea competition in Thailand for factories in the project area, and conduct an orientation meeting to explain objectives, and conditions for tea improvement programme to all the participants identified in the participation analysis.
- 2) Facilitate the applications for use of forest land by those owners of tea gardens who have Thai citizenship.
- 3) Ensure water supply for both the extension unit and household tea nurseries.
- 4) Provide training and equipment for extension staff in tea propagation, establishment, maintenance, and tea processing.
- 5) Ensure sufficient seedling supply from extension unit nurseries, farmers' nurseries, and/or through purchases from the private sector.
- 6) Provide know-how and inputs to farmers willing to establish tea nurseries and facilitate credit for fenced, high-density tea gardens.
- 7) Provide know-how and facilitate bank credit for inputs to owners of tea gardens to improve the management of existing tea gardens (fertilizing, pruning, picking).
- 8) Train farmers and factory owners in the financial management of revolving funds.
- 9) Improve the quality of tea processing through green leaf quality standards and training in processing methods. Improve marketing through price agreements for different grades using the Wawi label.
- 10) Encourage farmers to plant fuelwood for tea processing.

- 11) Conduct feasibility studies on alternative energy sources for tea processing and, if possible, introduce alternative energy sources.
- 12) Provide credit for the three-year improvement plant.

3.7 The Annual Budget Planning Workshop

The annual budget planning workshop is the next step. Senior management considers the local level annual work plans prepared by the field extension workers with the participation of rural communities. In Thailand this activity is normally scheduled in May, about 5 months before the new budget year commences in October. The total budget available for the annual government development activities can normally not be influenced by this workshop, as there is usually a lead time of 18 months for preliminary budget requests. With NGOs this lead time may not be as long.

However, this budget planning workshop tries to maximise the effectiveness of the available budget in relation to the staff capability, likely farmer participation, site suitability and other limiting factors. After a restatement of project priorities the local area plans are considered in relation to the available budget. If there is variance in the priorities or if the plans in agreement with programme priorities exceed the available budget, then the field staff are jointly asked to revise their plans.

At the end of the budget planning workshop the field staff should have a good idea of their work plan for the coming year, 5 months before the start of the fiscal year. The common situation is that it is often 3 months into the new fiscal year before field staff have an idea of the budget available for the expected work plan. There is obviously a much greater chance of success if field workers understand their work plan and input policy 5 months in advance.

In this case study several revisions of the original work plan were necessary during the budget planning workshop as decisions affecting the available budget were made. One decision was that the budget from the main TG-HDP counterpart Agency, the Office of Narcotics Control Board, was not available for tea development as it was not a direct opium replacement crop. The other decision was that the budget allocation to the higher priority activity of upland conservation farming with improved cropping systems in order to stabilize shifting agriculture in other parts of the project area increased. This also reduced the available project budget for tea improvement.

The thorough plan preparation and participation of the project communities in the tea development plan convinced TG-HDP management of the value of seeking a guarantee fund to enable the Bank for Agriculture and Cooperatives to extend a pilot credit of 5 million baht (\$200,000 approx.) over 3 years. This achievement in itself could justify the special effort required of extension staff to compile the local area plan.

4.0 THE SECOND CASE STUDY: PLANNING STAFF AND FARMER TRAINING FOR A PARTICIPATORY AGROFORESTRY PROGRAMME

4.1.1 The Setting

The conversion of large areas of forest to agricultural land of marginal productivity has resulted from the rural population increase in many Asian countries in the last two decades. Soil fertility has declined rapidly following removal of the forest and frequent cultivation of sloping lands.

A problem of national importance is how to intensify agricultural and forestry production on these relatively infertile soils despite the limited resources of farmers. If land productivity can be improved, then a smaller farm size would be needed for subsistence. The illegal exploitation of the remaining forest resources by farmers may be reduced. If land productivity cannot be increased, then further degradation of the remaining forest areas will probably continue unless increased off-farm employment is rapidly created for the growing rural population. The technology to increase land productivity on these "fragile" lands usually requires agroforestry solutions.

In the Philippines there were about 600,000 families practicing cultivation on forest lands in 1985. The Integrated Social Forestry Programme (ISF) of the Bureau of Forest Development (BFD) focuses on these illegal forest occupants. Earlier policies aimed at removing them were not successful. In 1982 the policy decision was made to grant long-term stewardship of up to 5 hectares of denuded forest lands to occupants, provided the grantees followed certain ecological and conservational measures.

The ISF Programme became the focus of BFD's activities in Region 6 (Iloilo) in 1983 following migration of urban poor to forest areas. Region 6 of the BFD implemented the ISF programme despite varied constraints. A total of 14 new project areas were opened in 1985 bringing the total number of ISF projects to 102. The total number of family beneficiaries under the Certificate of Stewardship contract in 1986 totaled 9,799 (BFD-ISF Report, 1986).

However, the financial resources and trained manpower of BFD were so limited that the intensive extension programme needed to raise land productivity could be implemented in only a few areas. The Magdungao Agroforestry Pilot Project (MAP) was one such project.

In this case study the BFD staff were implementing both the agricultural and community forestry programme, with some training assistance from the non-government World Neighbours Programme on Cebu.

4.1.2 The Institutional Setting

The USAID assisted MAP Rainfed Resources Project was started in 1984. Project funds are channeled through the BFD Regional Office in Quezon City, but management is by the regional BFD office. The project area at Passi is about 50 kilometers northwest of Iloilo, adjacent to areas controlled by the Communist New Peoples Army (NPA).

The forestry extension officers here were implementing: 1) the granting of land tenure through the 25-year Stewardship Contract (which may be renewed for another 25 years), 2) assisting with road improvement, 3) encouraging farmers to plant fruit and fuelwood trees through the establishment of a community nursery, and 4) introducing new technology for soil erosion control and more sustainable upland cropping systems, based on the World Neighbour's model.

The project staff had been told by the NPA, that provided their activities were concerned with granting tenure and improving upland farming systems, they were welcome to work with the farmers in the project area.

4.2 Social Considerations in Planning Extension Programmes: Behavioral Change

The issuance of Certificate of Stewardship Contracts to forest occupants by BFD in the Philippines costs about \$100 (US) per hectare. The local level implementation activities include the following:

- a) A census of forest occupants
- b) Setting of ISF district targets for granting Stewardship Contracts
- c) Meetings with the Barangay Captain (village leader) and farmers to reach agreement on land boundaries
- d) Land survey of ISF project sites, and the preparation of plans and Stewardship Contracts
- e) Survey of potential crops and markets
- f) Presentation of Certificate of Stewardship Contracts (CSC) to farmers
- g) Monitoring of compliance by farmers of the terms of CSC

There were a total of 1,200 BFD staff in 1986 in the ISF Division who had granted CSC to 49,737 families on 134,263 hectares of denuded forest lands between 1982 and 1985 in the Philippines.

The process of preparation necessary before introducing new technology in traditional farming practices, together with the settling of traditional land disputes, can occupy a year or more, as shown by the experience of the MAP Project.

The expected behavioural changes under the Stewardship Agreement of BFD in exchange for land tenure for 25 years, renewable for another 25 years, include the following:

1. "The grantee shall be responsible for the protection and conservation of forest growth on the land and shall cooperate with the Bureau of Forest Development in the protection of forest areas adjacent thereto.

2. The grantee shall not cut trees or saplings from a strip of twenty (20) meters on each side along the banks of creeks, rivers or streams, bordering or passing across the lands.
3. The grantee shall prevent and suppress unauthorized fires on the land or other areas immediately adjacent thereto, and when necessary shall assist the Bureau of Forest Development in extinguishing fires within the land.
4. The Bureau of Forest Development shall regulate the cutting or gathering of trees naturally growing on the land.
5. The grantee shall plant at least five (5) edible fruit trees per hectare of the land to provide food for wildlife species" (Stewardship Agreement, BFD, 1982).

The Stewardship Agreement may be canceled if the grantee fails to comply with the terms within 6 months of being notified in writing of his/her neglect. It is interesting to note that the Stewardship Contract is in English and not in Tagalog. Most of the MAP project extension leaflets were in the Ilongo dialect.

There were a total of 74 households in the initial MAP project area. There was no grouping of the houses into villages. There were two clusters of about a dozen houses linked by kinship, with the rest of the houses scattered. The first year was spent by the project staff in the preliminary meetings with the mayor, barangay captain, barangay assembly, the socio-economic survey and the dissemination of information concerning the programme before farm development activities commenced.

The staff experience was that the period of about one year and a number of meetings were required to motivate farmers to participate in the MAP Project. A strong social organization was necessary to handle such difficult matters as settling intra-community disputes over land boundaries before the issuance of CSC, and facilitating the community cooperation for "hil-o hil-o" labour exchange necessary to construct the graded contour ditches on adjacent farms for soil erosion control. If only some of the farmers participate in this work, then increased storm water flows may be diverted to neighbours' property, and the erosion hazard may be increased.

Where complex issues such as a change of land tenure or soil conservation measures constructed at farmers' cost are involved, project planners should set aside the first year to reach agreement with farmers on a joint course of action. One key question is how to monitor this process?

4.3 Improving the Agroforestry Technology

The granting of long-term tenure can be expected to increase the investment by farm families on their farms. But when average farm income is less than \$150 (US) and population increase is over 2.5%, is sufficient investment possible to raise farm productivity on marginal land?

The MAP experience illustrates the intensive agricultural extension programme needed to bring about land improvement and to introduce agroforestry technology on denuded forest lands. The new technology for improved farm production involved:

- 1) Contour soil conservation barriers, consisting of both vegetative barriers of *Gliricidia sepium* and grass; and graded contour ditches to remove typhoon rains along the slope to graded waterways.
- 2) Improved cropping systems with greater use of food legumes in rotation with the staple crops of rice and corn.
- 3) The increased planting of fruit and fuelwood tree crops as required under the terms of the CSC, and fuelwood trees.

There is no space within this paper to detail the complete extension programme, but the following steps in construction of the contour bunds planted with *gliricidia* indicate the detailed extension training programme needed for project staff and farmers.

The farmers prepared their own farm improvement plans in consultation with project staff. The improvement to sloping lands required training in the following new technology:

- a) The contour lines were marked using an A-frame, with a carpenter's level attached. The level was used to enable a slight slope (ideally 0.5%) to be placed along the contour to direct water into a natural drainage creek or a grassed waterway.
- b) The vertical interval was determined from the operator's eye height (i.e., 1.2 metres to 1.5 metres). Where soils were poorer and slopes steeper, a shorter vertical interval was used.
- c) Male buffaloes were used for a first ploughing along the contour line. About one week's training was needed to get the buffalo to walk the contour line. Female buffalo may be used for the following 8 to 10 ploughings along the contour lines to loosen the soil in preparation for the raising of contour bunds by hand labour.
- d) The "hil-o hil-o" labour exchange was used to raise the contour bunds by communal labour to a height of between one and two feet. The depression formed by the soil movement on the uphill side of the contour bund usually fills with soil after the first typhoon rain. The World Neighbours modification to this is a drainage ditch about two feet deep and one foot wide in order to quickly remove storm runoff. The labour used for the contour bund was a team of five to eight farmers (including women) to construct 100 to 150 metres of contour bunds in eight hours (i.e., about 20 metres of contour bund per worker day).
- e) A hedge of *leucaena* or *gliricidia* was planted on top of the contour bund, and cut every 45 days for manuring and/or animal feeding. *Gliricidia* cuttings were preferred as *leucaena* had been attacked by the *leucaena* psyllid. Grasses were also allowed to grow on the contour bund for rapid soil stabilization. After two or three

cultivations almost level bench terraces with legume hedgerows could result on a 30 percent slope.

- f) The farmer-centered implementation approach had resulted in a preference for food crops and annual cash crops over tree crops in the first 18 months of MAP project implementation. This is at variance with the BFD stewardship agreement, and may mean that later establishment of tree nurseries is required.

4.4 Relevant Points for Local Level Planning of Forestry Extension Programmes

An understanding of the extension implementation processes is necessary for planning manpower, training and input needs.

The following steps need to be defined:

- a) The behavioural change desired by rural communities on environment and conservation issues.
- b) The weaknesses of the present technology and the improvements in technology planned with the project.
- c) The expected benefits to the rural communities from the new technology.
- d) The operational steps (extension methods) to carry out the extension programme.

5.0 APPLYING THE PARTICIPATORY APPROACH TO THE FAO/SIDA SUPPORT TO FORESTRY EXTENSION IN NORTHEAST THAILAND

5.1 The Background

From 1982-85, 1.6% of the forest land was deforested in Thailand each year. The increasing population with an increasing need for cash income was the major reason. In the past 25 years, 15 million people (75% of Thailand's population increase) encroached on forest land.

Much of the growth in Thailand's rural economy in recent years has been achieved by increasing the production of agricultural crops for export. The area under rice, corn and cassava has increased, rather than yield per unit area. For example, Thailand is the world's largest exporter of rice, but it has one of the lowest yields per hectare in the Asian Region.

Family planning has been widely adopted in Thailand in the last 10 years, but population pressure on remaining forests remains high. There is practically no more forest land available for conversion to agriculture, and there are few trees left in the forest.

The Government is seeking to alleviate these problems through a number of programmes. One approach is the creation of forest villages, allocating up to two and half hectares of land per family for housing, agroforestry crops, domestic water supply, schools and health services and providing employment for farmers in reforestation work and plantation management activities. However, to date only 150 forest villages have been established by the Royal Forest Department and Forest Industry Organization due to budget limitations.

The FAO/SIDA project, "Support to Forestry Extension in the Northeast" from 1987 to 1989, is designed to strengthen the ongoing Thai Community Forestry and extension efforts for participatory forestry with forest occupants in the Northeast. FAO/SIDA will focus on community participation in management and benefits from tree resources.

The immediate project objectives are:

- To have a methodology for involving rural people in a participatory extension programme designed, tested and adopted in the project area by June 1988.
- To have 10 village groups organized and functioning in a demonstration capacity by January 1989.
- To have a fully equipped demonstration centre established at Nakorn Rachasima with smaller demonstration sites throughout the project region functioning as training locations for villagers, foresters and school children by June 1989.
- To have appropriate training materials developed and distributed on the following topics:
 - (1) agroforestry
 - (2) small scale forest based enterprises (SSFBE)
 - (3) community organization techniques
 - (4) monitoring and evaluation
 - (5) marketing and business management for SSFBE
 - (6) other topics identified as important by base line studies
- To have developed a participatory monitoring and evaluation system which has the capability of assessing the impacts of the project on the rural poor, both women and men. It is scheduled to have this system established and operating in the project area by December 1988, and to have this system adopted for all community forestry projects by December 1989.

5.2 The Institutional Setting

The Royal Forest Department, represented by the National Forest Land Management Division, is the counterpart agency. Forestry extension was recently recognized as a new activity within RFD, but there is no forestry extension division. There are public relations and extension activities in various divisions, but no attempt has been made to coordinate these efforts on a Department-wide basis.

In lowland areas, where community forestry is being promoted, the line agencies (departments of Agricultural Extension, Community Development, Education and Health) are represented at the sub-district level.

5.3 Opportunities for Applying the Participatory Planning Approach to the FAO/SIDA Project

The goal-oriented planning approach was used by the FAO/SIDA mission in May 1987 to assist in the preparation of a strategy for community participation.

This mission considered that the core problem is the decline of the national forest resources in Thailand. The solution requires cooperation between institutions and effective use of the resources of RFD. This analysis indicated three possible intervention points.

- a) A first point for intervention is to maintain existing forest resources and also to create new resources that will make it possible for people in wood deficit areas to meet their needs for forest products in ways other than through illegal harvest of forest products.
- b) The second point is to increase the effectiveness of the use of forest products. This should decrease the pressure on the forest and also increase the possibilities for users to pay for the raw materials.
- c) Most important is to maintain and create opportunities for people to make a living in the vicinity of the forest. The opportunities to provide the basic needs for people in these areas must increase, where they are now decreasing, due to the loss of soil fertility on marginal agricultural land, and the depletion of the forest resource (FAO, 1987).

The main project activities identified in the planning process broadly fit within the first two suggested intervention points.

During 1988 there will be a number of short-term national and expatriate specialists in agroforestry, social sciences, small business enterprises and social forestry working on the project. The first half of 1988 would seem to be an opportune time to work through the participatory goal-oriented planning approach with the involved RFD staff in preparing the detailed project work plan for the 1989 financial year.

5.4 Requisites for Applying the Participatory Approach

The annual budget planning workshop is the key activity linking participatory extension programme planning with decision making over the allocation of budget. One objective of the FAO/SIDA project could be to institutionalize this participatory planning approach in RFD.

If the planned participatory extension programme is to be designed, tested and adopted in the project before June 1988, then the following processes need to be completed in the first 5 months of 1988:

- 1) Identification of the main community forestry problems in at least the 10 demonstration villages in the project area.
- 2) The ideas of the rural communities on the ways they can solve their community forestry problems, and the preparation of site-specific work plans with the participation of RFD staff.
- 3) The detailing of the community forestry and agroforestry technology which may be used in the extension programme to improve the local technology, and the possible small scale forest based enterprises. These technical recommendations should be supported by gross margins analyses.
- 4) Management support in terms of allocation of budget and manpower resources at the local level plans.

A challenge for management is to link these separate activities, which will be implemented by a number of specialists, into a development process. The records of the community based structured meetings could be a useful data base for participatory monitoring and evaluation.

5.5 Constraints to Applying the Participatory Approach

Participatory forestry extension programmes need a special effort by project staff at all levels, and there may be no extra financial rewards or promotions. Indeed, the increase in field work needed to implement the participatory programme may work against promotions in any bureaucracies where management expects to be constantly attended by subordinates. The rewriting of duty statements may be a necessary step to institutionalizing participatory forestry extension.

Initially senior management may be reluctant to share decision making concerning the allocation of budget resources with the field extension staff. A project such as FAO/SIDA could be the catalyst for such a change. The key to gaining senior management acceptance is to show within the 2 to 3 year life-span of the project that the new method gets results. The results which management can readily observe are an increase in rural community participation in the project and increased extension staff capability.

ACKNOWLEDGMENTS

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EXTENSION FOR COMMUNITY MANAGEMENT OF FOREST RESOURCES

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1

Summary

The development of user group management plans is a necessary step in the implementation of the Nepal Government's community forestry programme. In this paper, it is argued that forestry extension must become more user-oriented and be an integral part of all forest management activities. In this concept of extension the villagers are seen as both the users and managers of the forest and the forestry professionals and technicians are seen as technical advisors and facilitators. The importance of working with people and of assisting intra-village and village-government negotiation is stressed.

Introduction

Forests and trees are integral parts of the farming system in Nepal. Villagers must have access to forest and tree products such as fuelwood, fodder, timber and leaf litter to survive. However, the sustainability of the farming system is severely threatened by deteriorating forest resources.

In the last decade it has been recognised that the problem of deforestation is too large for Forest Department personnel alone to tackle. Management of forests by the users themselves is seen as the only practical way to provide a sustainable supply of forest products. Therefore, the government has designed and implemented a community forestry programme throughout the hill regions of the country. The fundamental aim of community forestry is to benefit local people and involve them in all aspects of forestry activities.

However, forestry extension programmes in most cases have proved largely ineffective in facilitating the accomplishment of the above objectives. This is largely because extension programmes and activities often have been planned and implemented as additional activities and not integrated into normal forestry operations. Also, extension usually has been perceived as a topdown, one-way process of communication, with the forestry professionals or technicians telling the local people about trees and forests. Physical elements such as study tours, seminars, showing of documentary films, slides and filmstrips and distribution of posters, leaflets and newsletters have become the generally accepted form of extension activities.

A further problem is that most extension activities have focussed on elected village leaders and local departmental or project employees.

1 Nepal-Australia Forestry Project, Kathmandu, Nepal

However, the knowledge gained by them has rarely been passed on to other members of the communities. No real attempt has been made to consult the people at lower levels. Consequently, the mass of the farmers and villagers with whom the community forestry programme should be mostly concerned has remained largely unaffected (Malla, 1987)

It is now increasingly felt and argued that a completely different and village-centered approach to extension is needed. This paper is based on the authors' experiences in Nepal and discusses some extension methods and approaches to community management of forest resources.

Extension for Participatory Forest Management

In Nepal, utilization of forest resources by local communities requires the preparation and approval of a forest management plan. This document specifies the rights of the community to use forest products and the responsibilities that they accept in return. Early management plans were often highly technical (including a detailed forest inventory, biomass estimates, yield regulation, and so on). This sort of plan, perhaps appropriate for commercial forestry, has proven to be impractical and unnecessary for community forestry and much simpler plans are now advocated (see, for example, Karmacharya, 1987; Gilmour et. al. 1987)

The emphasis is gradually shifting from a highly technical classical forest management approach to a participatory approach which sees the villagers' role in forest management as paramount and which sees the forester's role as that of an advisor (Gilmour et. al. 1987). Forests, then, become a resource managed by the people for their own benefit. The underlying rationale is that the people who use the forests must also be able to manage them. Extension ceases to be a supplement to forestry activities and becomes the basic role of forestry personnel. Forestry, in effect, becomes extension forestry (Malla, 1982; Gronow, 1987a).

If the participatory approach to managing community forest resources is adopted, then the extension programme must be an integral part. Extension, in this approach, should involve continuing dialogue between the villagers and government (or project) personnel leading to the transfer of knowledge, information and skills from the foresters to the villagers and vice-versa (see Malla, 1987). Thus, extension is not just a one-time activity but a continuous process. It is not about telling the villagers what they should do, but it is about helping them to help themselves. Recently in Nepal, there have been moves within several community forestry projects towards making extension a basic concept in forestry (see Gronow, 1987a, regarding the activities of IHDP in Dolakha District). Within this emerging change of approach the Nepal Australia Forestry Project (NAFP) has been developing an extension strategy to work at two levels.

One level focuses on re-structuring of the Forest Department at the district level and re-training its field staff, with particular emphasis on Forest Rangers and Assistant Forest Rangers, to act as primary extension agents. At present, most Rangers and Assistant Rangers, being technically trained, possess sound knowledge of trees and forests, but lack the knowledge, attitudes, skills and confidence to work with villagers. They often seem passive whenever discussions revolve around community forestry.

One of the reasons for all this, as Gronow (1987 b) points out, is that the Rangers too have been left out of the discussions that go on above them about community forestry. There exists a gap between them and their superiors that needs to be closed down.

It is not just that Forest Rangers and Assistant Forest Rangers simply lack skills and attitudes needed for community forestry, but that they may not have been given opportunities to develop these attitudes and skills. With this perception and the hope that these field staff will eventually acquire the knowledge and skills to work as extension agents, NAFF is now organising on-the-job training and intensive workshops on a village approach to forestry for the Rangers and Assistant Rangers working in the project area. This training emphasizes the art of communication and the need to spend extensive periods of time in the villages, listening to the people and working with them.

The second level in the extension strategy involves working with local people and making them self-reliant in forest management (Gronow, 1987b). Each of the Forest Rangers and Assistant Forest Rangers who has been through the training selects a panchayat where he starts intensive extension activities leading towards the development of management plans. This involves spending several days in different villages within the panchayat, building rapport, collecting information and informally tapping the villagers' experience, skills and local knowledge. The forest users are encouraged to form into groups, with the eventual aim that they will form a committee. The villagers then work towards preparing management plans with the help of the Forest Rangers and accept the responsibility and authority for managing their own forest resources with minimum assistance from the government other than technical advice and information.

The Case Study

We will now refer to experience in one Panchayat where attempts were made to translate the concept and theory of the participatory approach to forest management into practice. A full account of the work is given elsewhere (Paudyal, King and Malla, 1987). Only a brief summary is presented here.

When management work was initiated in Tukucha Village Panchayat, the work began with a Panchayat level meeting, which was attended by about fifty men and a few women, who hardly spoke. A committee of mostly local male leaders and elites and one woman member was formed. This committee decided to manage the forest resources on a Panchayat basis. Prices and harvesting times were also fixed at the meeting. There was no follow-up to this for several months and during this period, the committee did not meet and was totally ineffective, as the members did not know their duties and authority.

The District Forest Controller (DFC) then called another meeting of the committee to discuss some of the problems perceived by the Forest Department and project staff. He suggested the need for greater local feedback from ward meetings. When the ward meetings were held, it quickly became apparent that the first Panchayat level meeting had not represented the views of many local people, particularly in regard to forest usage,

access rights, prices for forest products and management of the forest.

As a result of the ward meetings, it was decided to concentrate work in one ward, consisting of two villages (Pandegaon and Rayagaon). Two meetings were held at Pandegaon. Both of the meetings were dominated by male village leaders. Women attended the meetings only at the request of Forest Department or project staff. The information obtained from such meetings was later found to be mostly incorrect or inaccurate. For example, the men said that people from only two villages used the forest whereas women, who regularly go to the forest but were unable to speak at the meeting, knew that people from outside the ward and outside the Panchayat also use the forest.

From the work in Pandegaon it was clear that without a much fuller understanding of the village people and forest usage patterns, any attempt to prepare management plans would undoubtedly fail. The whole approach was then reconsidered, a new village-centred approach was adopted, and work was completely concentrated in one village - Pandegaon.

Both Forest Department and project staff were trained in village-level extension work. They initiated activities by building rapport through frequent visits to the field and spending several days living among the villagers. The aim was to develop mutual trust and confidence and to convince local people that field staff were working for their benefit, and that they could view the programme as their own rather than as something imposed from outside.

During the visits staff progressively gathered information and built up a picture of forest usage patterns and problems. Information was gathered through informal discussions in the villages and tea shops, while walking through the forest with the villagers and while staying overnight in the villagers' houses.

The information gathered was used to identify the different forest users. Informal discussions were held with small groups of people with similar sets of interests (see Fisher and Malla, 1987) and field staff organised separate discussions with women and low caste people.

An essential part of the process was the role of negotiation, both between villagers and between villagers and the Forest Department. For example, there was conflict on boundaries and access rights to the forest. The access problem was resolved by a process of negotiation at an inter-village meeting, but the DFC intervened, at the request of the villagers, to resolve the boundary problem.

Simple silvicultural and harvesting techniques were discussed with the actual users (women and children) in the forest. This was followed by a visit to plots demonstrating a series of different management options and to a plantation forest in another district where another group of users had begun to harvest the products. At least one person from most households in Pandegaon participated in the visits.

When the villagers appeared to have developed some understanding of the concept of forest management and the benefit it could provide, a management plan was prepared with the villagers and in the village. The

villagers decided on the content of the plan and this was written down by field staff using flip charts. By the time the plan was being prepared and an election of members for the new forest committee was taking place, both women and low caste people had become quite vocal. At this stage they made up nearly 40% of committee membership. Every effort was made to keep the plan simple and understandable to forest users, acceptable to both the users and government and flexible to allow it to be adapted to changing circumstances. Details of the plan were negotiated with the DFC, who made some changes to allow it to conform with government policy.

As part of the negotiations with the Forest Department and plan preparation, the committee members determined their duties, responsibilities and authority. The committee undertook responsibility for harvesting and equitable distribution of all the forest products, for organising pitting and planting of a small area of degraded land adjacent to the forest, and for protection of the forest and plantation, including employing the forest watcher. This included the gradual phasing out of project payment of the watcher's salary. The Forest Department took responsibility for providing information and technical advice including training, planting materials and some financial assistance.

In this particular case, the visit by the villagers to management demonstration plots and to a plantation forest in another district, where the users had already begun to accrue benefits, appeared to be a major turning point. Through the visits they recognised that management of forests meant use of forests as well as protection of forests.

The other turning point was the process of negotiation that took place between the villagers and the Forest Department about their respective roles, particularly in terms of the control and authority which in this case have been delegated to the forest users' committee. This delegated authority was seen as a substantial benefit by the villagers, and the committee is now meeting regularly and making and implementing decisions.

Discussion and Conclusions

There are a number of lessons to be learnt from the process described above including the mistakes that were made in the initial stages of the work in Tukucha Panchayat.

Throughout the process, every effort was made to consult the villagers at the lowest level (the actual users of the forest, mainly the poor, women and low-caste people), while still maintaining contacts with the local elected leaders such as the Pradhan panchayat and Ward Chairman. Similarly, equal emphasis was placed on involving the Forest Rangers and/or Assistant Forest Rangers as far as possible in every stage of the process.

Experience in Tukucha and elsewhere in the project area indicates that effective management of forest resources is most likely to occur at the user group level and that a complete picture of the village, people and patterns of usage of forest must be understood before starting to write any management plans.

The other point that should be made here is that organising public meetings or setting up committees too quickly may not be constructive because such activities are seen by people as opportunities to gain social status and political influence. Committees may end up with all the elected leaders of the Panchayat as their members. The poorer, shyer, and under-privileged people, such as women and low caste people, who actually go to the forest, may be left out of the committees (as happened initially in Tukucha Panchayat). Therefore, formal committees should not be set-up to negotiate management plans until a full discussion with all user groups of issues, problems, needs, and their role has taken place (Fisher and Malla, 1987; Malla 1987). This can be done through informal discussions with people either alone or in small groups with similar interests. The importance of informal discussions with users taking place before formal meetings are organised has also been stressed by Dani and Campbell (1986).

The approach adopted in Tukucha places no time limit on the process and provides the villagers with ample opportunities to express their views to forestry staff. More importantly, it gives them enough time to think, discuss and negotiate issues among themselves.

At this stage, this is the approach to extension which appears most likely to lead to the implementation of community forestry management on a sustainable basis. This has a number of policy implications in terms of the roles of the Forest Department and its field staff. In order to direct their activities towards community forest management, fundamental changes will be needed in their present roles. These changes will have to be brought about by re-orientation and on-the-job training and by making changes in the present course-curriculum of the Forestry Institutes.

Notes

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ROLE OF MICRO-PLANNING AND AGRICULTURAL EXTENSION IN SOCIAL FORESTRY IN INDIA

1
A.K. Banerjee

Social forestry as practised in India consists of two main components, 'community' and 'farm' forestry. Continuous debate goes on as to how these two components can be implemented with participation of the people. In this presentation I will conclude that forestry extension has to be of a different nature in these two components. Microplanning followed by its implementation should be the main tool for community forestry extension. In the case of farm forestry, besides microplanning, transfer of technology by contacting individual farmers could also be arranged through development of liaison with on-going agricultural extension.

I. Microplanning*

Microplanning as I envisage it has a number of characteristics:

1. The plan is made for a small unit of area, namely a village.
2. The plan is prepared by the forestry technical person in consultation with the village people.
3. The plan should be based on a survey and consultation which can be quickly done. But it is not a one shot affair. Continuous consultation and involvement of people should take place during implementation of the plan.
4. The plan's technical package is made in relation to the perceptions of the village people about their needs for fuel, fodder, employment, small timber and environmental rehabilitation and finalised by discussing it with the people.
5. The plan should be based on the land resources, fund resources and leadership resources of the area.
6. The plan has to be a very simple document easily understandable by the village people.

We will discuss below how microplanning should be carried out to attain all the above characteristics.

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* for more details, see Banerjee, A.K. 1987. Micro-planning. A tool for social forestry implementation. NWDB. New Delhi.

1. The plan is made for a small unit of area, namely, a village. A village is a very diffused term in India. Particularly in the hills, a village may consist of a number of small hamlets distributed over a large area. Similarly in the plains, a village panchayat (an elected body) has jurisdiction over a number of villages. In order to get over these problems I envisage a village as that which has a right over a particular community land.

2. The plan is prepared by the forestry technical person in consultation with the village people. Consultation with the village people is the key to the success of this plan. Villages in India show a lot of heterogeneity in caste, creed, religion, degree of poverty and richness etc. In my understanding, economic differences among village people play the dominant differentiating role.

Economic classification is done in India on the basis of land holding. Four major classes are landless, marginal farmers, small farmers and large farmers. Consultation has to be done with each of these classes separately. As it will be time consuming to meet each family of each class, as a compromise, the planner should take a few samples from each. The number of samples in each class should be more or less equal to the weightage of that class, vis-a-vis the whole community.

Let us say that there are 100 families of which 20 are large, 30 small, 20 marginal and 30 landless. If we decide to interview 20 families out of 100, we have to randomly select 4 large, 6 small, 4 marginal and 6 landless families.

3. The plan should be based on a survey and consultation which can be quickly done. But it is not a one shot affair. Continuous consultation and involvement of people should take place during implementation of the plan. The plan is not meant to be a sophisticated document. The aim is to involve people and take cognizance of their choice and options. As the task of planning for all villages in a country like India is enormous, one has to make the process rapid to cover a lot of ground and thus create an impact. The plan is just the beginning of the operation. People should be involved at every stage in implementation, product sharing, etc.

4. The plan's technical package is made in relation to the perceptions of the village people about their needs for fuel, fodder, employment, small timber and environmental rehabilitation and finalised by discussing it with the people. Assessment of the perceptions of the families randomly selected has to be done by meeting them in their homes. In this meeting a general discussion in an informal manner regarding their needs for fuel, fodder, small timber, employment and environmental rehabilitation should take place and the planner has to decide on two main priority needs of the family. The sample findings from each class should indicate the representative needs of the whole village.

A technical plan has to be now prepared which aims at producing the assessed needs. The technical package has to be therefore very innovative and be quite different from the traditional forestry packages. Agroforestry, vertical and horizontal mixtures of species, introduction of shrubs, fodder legumes, fodder grasses, management of the plantation through pruning, pollarding, copicing, lopping, spacing-out, etc., should

form important components. The plan should also indicate the focus of extension and work out the zones of responsibility of the local leadership, of the people, and of the government. The prepared plan should then be presented to the people in a series of meetings, revised and finalised.

5. The plan should be based on the land resources, fund resources and leadership resources of the area. It has to be realised that the microplan has to be based on the available resources in the village. These resources are land, funds and leadership. Obviously, non-availability of any one of these will make the plan a theoretical exercise. The planner should, therefore, assess them before setting out the technical package. The land resources include courtyard land, boundary land of agricultural fields, private marginal lands, community lands, public lands including road, canal and roadside strips, etc. The fund resources come mainly from government resources as the village generally has little funds to spare. The leadership resource may be village panchayat (elected), voluntary associations, such as women groups, youth groups, etc.

6. The plan has to be a very simple document easily understandable by the village people. The plan should be in local language and written without using any jargon or botanical names.

The microplan with all the above characteristics is thus a simple document prepared in consultation with people with a technological package which creates products opted by the village. During implementation people are continuously involved in management and benefit sharing.

II. Observations on liaison between Farm Forestry and Agricultural Extension

Scope of Farm Forestry

In farm forestry, farmers have to be motivated to plant trees on their own land at their own cost. This may mean using land lying waste (including planting on bunds around farms), switching over from the present land use to tree farming, allocating a part of one's labour to an activity which is not immediately rewarding. The aim of all these activities is for better economic returns to the farmer and for production of fuelwood, fodder and small timber for direct use at his home. The technology required to achieve these benefits has to be specifically extended to the farmers. This technology should include how to raise the maximum volume of wood in a minimum time which needs research and training. To realise the benefits of tree planting takes time; therefore, extension has to be continuous.

The operational steps in farm forestry extension are:

1. Creating a general awareness of tree economics, of availability of incentives for farmers, of the importance of trees in homesteads, of its effects on agriculture in crop fields, etc.
2. Survey every year of demand for different tree species by different categories of farmers at least 3-6 months in advance of planting time.

3. Checking whether suitable land is available for the number of plants requested.
4. Supply of seedlings and other inputs.
5. Promotion of kissan/school nurseries.
6. Transfer of technology and skills through regular field visits.

The operational steps in the research linkage with extension are:

1. Coordination of forest research activities among forest departments, state agricultural universities (SAU) and central and state agricultural research institutes.
2. On-farm trials.

The operational steps in training are:

1. Training of forest department personnel.
2. Training of farmers.

Structure and methods of agricultural extension system

Structure

The organised pattern of the agricultural extension system is annexed (Annex 1). The highlight of the organisation is that it has a single line of command with a structured implementation schedule. Right from the Director of Extension (DOE) to village extension worker (VEW), the single objective is transfer of agricultural technology to farmers. Generally speaking there is one VEW for about 800 families (average 2-3 villages), one Agricultural Extension Officer (AEO) for 6-8 VEWs (average 15 villages), one Subdivisional Extension Officer (SDEO) over about 6 AEO, one DEO over 3 SDEO and one ZEO over about 3 DEOs.

Method

The method of the implementation schedule is fully rigid. Each VEW is to contact 10% of his assigned families, chosen in advance on the basis of certain criteria, every fortnight on a pre-determined schedule to teach the agricultural production recommendations for the coming fortnight. If the number of families assigned is 800, he has to contact 80 in a fortnight. This he does in 8 days, i.e. 10 contact farmers a day. The balance of 6 days are spent as follows: one day to attend fortnightly meeting organised by SDEO, one to three to make up for contact days missed due to illness, etc. and for special meetings with farmers and the balance of days for his weekly holidays. The contact farmers are thus the regular recipients of the fortnightly messages and they are expected to pass them on to the other 90% of the farmers.

Similar to VEW, Agricultural Extension Officers (AEO) are primarily field workers and are expected to spend 8 days in a fortnight in the field visiting their ranges to make sure that VEWs under them are doing their job as scheduled and that production recommendations are being appropriately adopted by farmers. They also carry out some field trials in farmers' lands. Fortnightly meetings are arranged by SDEO on prefixed days and all the VEW and AEO attend these meetings in groups of 25-30. Subject matter specialists (SMS) provide the technical training and guidance to VEW and AEO and formulate production recommendations. SMS, in their turn, receive training once every month in monthly workshops organised at the district level where the State Agricultural University (SAU) scientists take part. This meeting, apart from updating the knowledge of SMS, formulates the production recommendations for the subsequent two fortnights.

III. Agricultural extension approach and its relevance to the needs of social forestry extension*

As earlier discussed, the main objective of agricultural extension is to personally transfer the latest available crop technology to 10% of the farmers in a regular schedule throughout the year. The approach so far does not provide for extension of subjects other than agricultural crops nor do they cater to messages for increasing farm income as a whole from all land-based activities. The objective therefore is limited. A review of the whole approach has been now undertaken by the GOI and by the World Bank and change from crop bias to farm bias is likely. That would mean that alternative rural land-based income generating aspects will be dealt with by the agricultural extension. On the other hand, there is no likelihood of any change in the scope of extension which will continue to concentrate only on training, transfer of technology, research linkages and field trials.

The needs of social forestry extension, as discussed earlier are creation of awareness of tree farming benefits, transfer of technology to individual farmers, production and supply of tree seedlings of desired species, improvement of training and the establishment of linkage with SAUs. Hypothetically assuming that forestry extension will be entrusted to the agricultural extension system, it is obvious that the agricultural extension system is not equipped to do all the multifarious jobs mentioned. The social forestry department will have to take up the main burden of extension.

I, however, believe that some aspects of forestry extension can be very well handled by the agricultural extension system. These aspects are distribution of publicity material, transfer of technology and transfer of marketing information on a regular basis to contact farmers. The agricultural extension organisation can also be instrumental in bringing together SAU scientists and the state or forestry research and social forestry personnel. In addition, the agricultural extension system can

* See also: Banerjee, A.K. 1988. Can methods and structures of agricultural extension really work for social forestry extension?
In: FAO/RWEDP - IIMA 1988. Planning Forestry Extension Programmes in India. Bangkok.

provide knowhow to social forestry about horticultural trees in particular and can perhaps arrange to provide the service of their agricultural farms as centres of seedling distribution to farmers.

In order that agricultural extension and social forestry departments effectively coordinate in carrying out some of the functions discussed above, we recommend that the following actions are taken.

- (a) The State Government should issue a directive (where not done already) to the Agriculture Department and Forest Department to suitably utilize the agricultural extension system for farm forestry extension.
- (b) Agricultural extension system should change from crop bias to farming system approach.
- (c) So far agricultural extension is largely confined to field crops and the importance of social forestry in improving farm income through better utilisation of scant resources is little understood by traditionally oriented agricultural officers. For better appreciation of farm forestry a brief orientation training at forest range level should be given to agricultural extension personnel on the needs and economics of individual tree species and on agro-forestry, which are recommended for farm forestry.
- (d) Similarly, there is a need for the forest officers to understand the concept of agricultural system of extension and the functioning of extension services. A short orientation course should be conducted for all social forestry personnel at SDEO level.
- (e) The Deputy and Assistant Conservator of Forests as resource persons, and range forest officer as subject matter specialists (SMS), should attend monthly workshops on one day fixed in consultation with the coordinator and help to generate technical recommendations on farm forestry. These meetings can also generate messages of a general nature for individuals, for groups and for mass media. The range forest officer should train the foresters, AEOs and VEWs in the messages to be communicated to farmers, at the fortnightly training. The Social Forestry Wing (SFW) should designate the officers namewise who have to attend monthly workshops and fortnightly trainings with intimation to concerned AEO/SDEOs. To maintain continuity it is essential that the same persons attend monthly workshops and fortnightly training sessions over a season. The participation should commence three months before the planting season and continue three months after the planting season.
- (f) Written messages should be given to AEOs/VEWs on the recommendations made. The economics of growing different species in agro-forestry should be worked out for motivating the farmers and convincing the extension workers.
- (g) The VEWs should tell farmers about the centre/nurseries where the seedlings will be available. Rangers while attending fortnightly training should make seedlings available from the notified centres.
- (h) The range officers should inform about the availability of different species of plants in different nurseries in the subdivision so that VEWs can pass on this information to potential farmer beneficiaries.

(i) In states (as in Kerala, Jammu and Kashmir) where there are separate establishments for input supplies, seedlings could be arranged by the input agencies to be distributed on fixed days to nearby farmers as per their indents. Agriculture department can provide agricultural farms as one of the centres for seedling distribution.

(j) The VEWs should organize group discussion of farmers in villages on normal or extra visit days without interruption to regular programme where forest officers can be present to explain and create awareness among farmers of farm forestry.

(k) The VEWs and SFW jointly should identify potential farmers who can start kisan nurseries to facilitate quicker and safer distribution of seedlings during the planting session.

(l) After the planting season is over, the VEWs should identify any management problems experienced by farmers, and present it to the range officers during fortnightly training session as feedback.

(m) At each nursery there should always be available appropriately trained forest department staff to advise farmers on the selection, planting and care of the planting stock they obtain. However, care should be taken that this advice does not contradict that taught to VEWs in fortnightly training sessions and subsequently to the farmers.

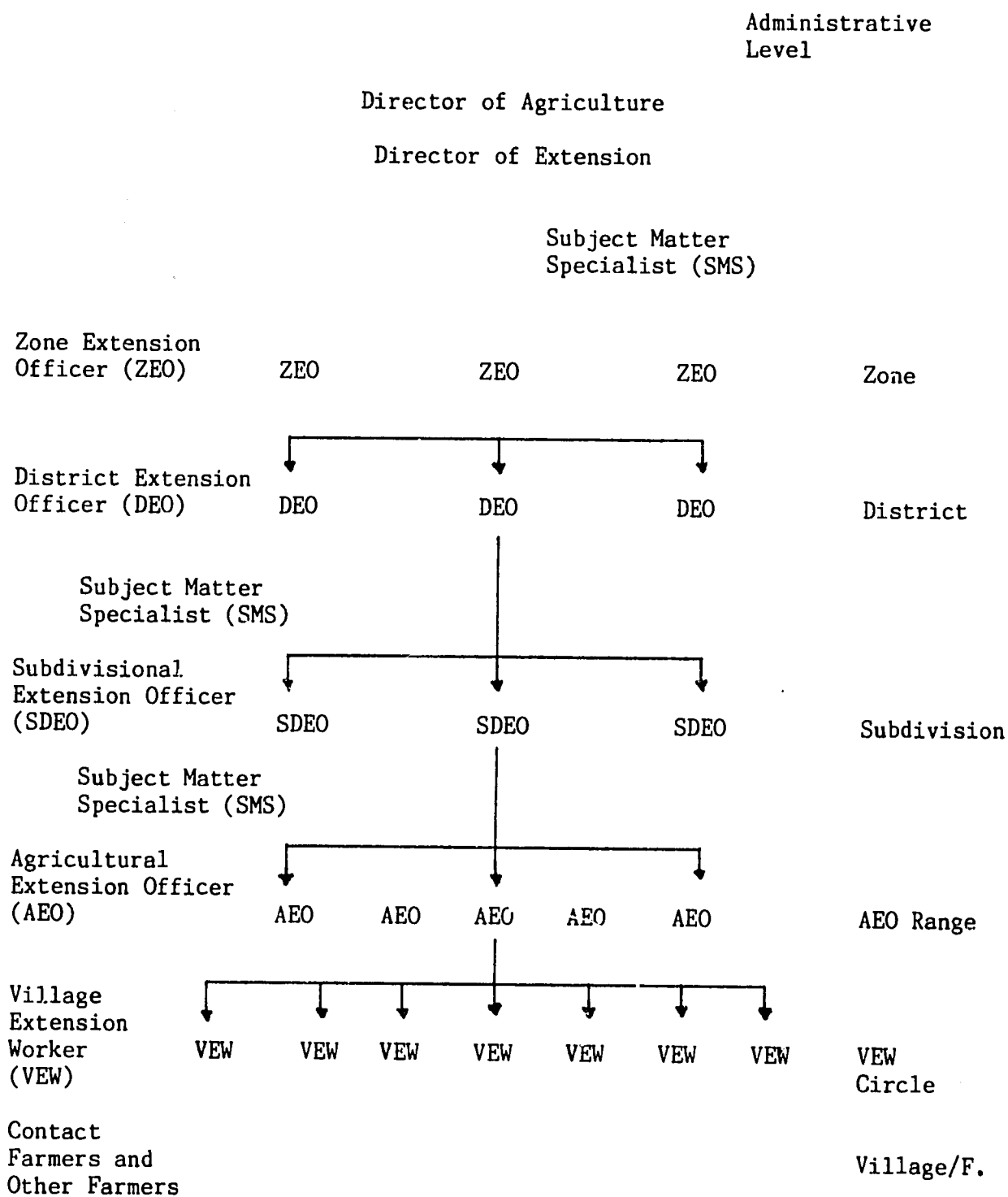
(n) Literature and other mass media material either for distribution to farmers or to extension workers prepared by the social forestry staff are handed over to the VEW during fortnightly meetings.

(o) Forest department nurseries presently often produce plants and fruit trees from seeds such as mango, guava, sapota, jackfruit, cashew, whose performance as fruit trees is uncertain due to its unknown parentage. Collaboration with the Department of Agriculture or Horticulture should be established so as to obtain vegetatively propagated plants or seedlings of good seed origin, for distribution under farm forestry programmes.

(p) Agricultural extension should arrange agro-forestry field trials with the help of SAU and the local forestry SMS.

(q) Agricultural extension should promote establishment of formal linkages between research and extension in social forestry. The SFW and the State Silviculturist should be represented in state level technical committees and ZRACs. Coordination at block, district, zone and state level can be achieved by inclusion of one or two members of social forestry to the existing committees rather than proliferation of committees.

Organisational Pattern of the Training and Visit System of Agricultural Extension



PRESENT STATUS OF AGRICULTURAL EXTENSION AND SOCIAL FORESTRY LINKAGE

State	Agricultural Extension	Social Forestry	Linkage
Kerala	Established in entire state. Organised with separate staff for extension, separate staff for input supply and services.	Established in entire state. Separate staff for social forestry voluntary agencies used for extension works.	Govt. issued orders on linkage. Linkage only in isolated cases. Needs improvement.
Tamil Nadu	Well organised in entire state with separate staff for inputs and services. Has separate Agroforestry wing.	Social Forestry well established. Motivators employed for extension work.	No formal linkage exists. Rarely attend extension meetings. Needs stronger linkage.
Karnataka	Well organised with separate staff all over state. No separate staff for inputs and services.	Established with separate staff in 14 out of 19 districts. Motivators for extension works.	Formal linkage ordered by Govt. Isolated attendance of workshops by SF staff needs strengthening.
Rajasthan	Well established with separate staff in all districts. Functioning.	Social forestry wing established with separate staff. Overlap with territorial work.	Memorandum of understanding on linkage issued by Govt. No linkage at operational level. Objective not understood.
Madhya Pradesh	Extension now extended to all districts. Many VEW positions still vacant. Agroforestry division of horticulture sends messages through VEW.	Social Forestry established with separate staff. No extension work done.	No linkage with extension exists. Needs strong linkage.
Gujarat	Well established in whole state. Separate staff for extension.	Social Forestry wing established with separate staff.	Linkage order by Govt. Irregular attendance of workshops. Needs strengthening.
Haryana	Well organised and works satisfactorily. Separate staff for extension.	SF is well established with separate staff. Village Forestry worker does extension work.	Irregular participation. No continuity. Linkage needs strengthening.

Annex 2 (Cont'd)

State	Agricultural Extension	Social Forestry	Linkage
Jammu and Kashmir	Extension system established only in 1985 - Full staff getting into position.	Social Forestry is well established with separate staff. Motivators for extension work.	There is no linkage with agricultural extension.
West Bengal	Extension system established in the state. VEWs are inadequate.	Well established social forestry wing with motivators for extension.	No formal or informal link exists. Need strengthen linkage with agricultural extension.

THE INTEGRATED SOCIAL FORESTRY PROGRAM IN THE PHILIPPINES

1

Edwin V. Payuan

One of the major Department of Environment and Natural Resources (DENR) programs involving forestry extension is the Integrated Social Forestry Program (ISFP) of the Forest Management Bureau (FMB). Its creation in 1982 was in line with the government's policy to democratize the disposition of public forest lands and to promote a more equitable distribution of forest benefits. It aims to uplift the socioeconomic condition of forest occupants and communities dependent on forest lands for their livelihood. The program recognizes the potentials of the forest occupants and communities as effective partners of government, not only in forest development and conservation but also in food production. Social forestry lays the groundwork and paves the way for forestry extension to contribute directly to rural development.

ISFP has a manpower complement of 1,431 broken down as follows: 45% foresters, 20% agriculturists, and 35% other disciplines, including sociologists, market analysts, statisticians, etc. Twenty-seven percent hold permanent positions and the rest are non-permanent. The program is implemented nationwide covering 13 regions, 70 provinces and 760 municipalities. As of December 1987, it involves a total of 202,206 families of forest occupants covering some 490,612 hectares of forest lands. Of these, 136,538 hectares have been developed into agroforestry farms and plantations. Around 75,463 individual Certificates of Stewardship Contracts (CSC) have been issued covering 191,481 hectares of forestlands. Likewise, 10 Community Forest Stewardship Agreements (CFSA) have been issued to 6,340 families belonging to various cultural communities and involving an aggregate area of 25,267 hectares of forest lands.

As mentioned earlier, forestry extension plays a vital role in the ISFP. The subject matter or content of messages and packages under the program include the following:

1. The program's rationale, concept, objectives and strategies emphasize social and developmental aspects rather than punitive measures and regulatory approaches. It also focuses on the benefits derived from the program and the upland farmers' responsibilities as program participants.
2. Land tenure options (Certificate of Stewardship Contracts or Community Forest Stewardship Agreements).
3. Agroforestry technologies including soil and water conservation measures such as alley cropping, hedgerows, sloping agricultural land technology (SALT) and others.
4. Community organizing.

1 Forest Development Chief and OIC, Social Forestry Division, Forest Management Bureau, Department of Environment and Natural Resources.

5. Community-based forest management, forest protection, watershed management, and reforestation.
6. Other livelihood enterprises such as sericulture, apiculture, livestock, handicrafts, cottage industries, and others.
7. Marketing of forest-based farm products.
8. Environmental development and conservation.

The forestry extension and information component of the ISFP and other upland development programs are mainly carried out through the following strategies:

1. Interpersonal approach - This involves the conduct of a person-to-person information campaign; organization of barangay forums, small discussion groups and forest conservation rallies during National Resources Consciousness Week, Arbor Week and World Environmental Day.
2. Mass media approach - This involves preparation of news and photo releases, including feature articles for publication in major newspapers and magazines; production of technical bulletins, leaflets, brochures, handouts, posters, and other information materials; airing radio programs (e.g., radio plugs, jingles, and interviews); conduct of slide and tape presentations, documentary film showing, television interviews, photo exhibits, and product displays; and installation of billboards, signs and others.
3. Linkages with information organizations - This involves the establishment and maintenance of formal and informal linkages with information agencies such as those mentioned earlier.
4. Training - This includes the Community Development Training Program for Foresters conducted by the DENR in collaboration with concerned academic and research institutions, including non-governmental organizations. This training program comprises four modules, namely: (1) Program Orientation and the Total Person as a Change Agent; (2) Development Perspective in Forestry; (3) Community Organizing and Community Development; and (4) Action Planning. As of December 1987, 437 foresters have been trained under this program.
5. Extension research and studies - This involves the conduct of field surveys to establish baseline information regarding target groups, including documentation and case studies of successful community-based forestry projects.
6. Monitoring and evaluation

In addition, the University of the Philippines College of Forestry Institute of Forest Conservation has also developed for 1988 short training courses related to forestry extension such as:

1. Forestry Extension Officer Development - Analysis of economic and social issues in forestry, the application of extension approaches and strategies to forestry projects, mobilization and organization work, comparative extension programs and the monitoring and evaluation of extension efforts. (6 weeks)
2. Applied Communication Development - Organizing and mobilizing communication resources in support of forestry development programs and related activities. (6 weeks)
3. Social Forestry Officers Development - Concepts, principles and practices of social forestry, development approaches and management of social forestry programs and projects. (8 weeks)
4. Forestry Training Management - How to develop, plan, implement and evaluate training programs; methods appropriate for adult learners such as experiential learning approach. (6 weeks)
5. Social Research and Evaluation Studies in Forestry - Preparation of social research and evaluation studies on integrating forestry projects with rural development, major steps in undertaking social research work from formulating a research problem to analysis and preparation of research report proposals. (12 weeks)
6. Agroforestry - Principles, approaches, policies, methods, techniques in agroforestry and design, implementation, monitoring and evaluation of agroforestry projects. (8 weeks)
7. Reforestation Planning and Plantation Establishment and Management - Principles and techniques of conducting planting surveys, preparation of reforestation plans, species selection, production of planting materials, establishment of tree farms, marketing and harvesting. (8 weeks)

This year, the U.S. Peace Corps in collaboration with DENR is also conducting an In-Service Training on Strategy Development for Extension for Peace Corps Volunteers and their DENR technical counterparts in the field offices. The course content includes the community extension process, case studies, problem solving, extension tools and communication systems, monitoring and evaluation, training farmers to be trainers, extension support services, working as an extension team, action planning for forestry extension.

ANALYSIS OF PROGRAM PLANNING AND IMPLEMENTATION

Planning

At the local level one of ISFP's implementing guidelines specifically provides for the recognition of indigenous technologies. The understanding of local land management systems, processing, marketing and utilization of forest products is achieved by the staff through the use of survey instrument(s) such as the Rapid Community Appraisal (RCA), census and others. RCA involves the systematic retrieval of site-specific information

that will be used in the planning and implementation of community-based forestry projects. It includes the physical and bio-technical characteristics of the area and the socio-cultural and political aspects of the community.

Community organizing has been accepted as one of the principal means for promoting people's participation in social forestry. Initial experiences in the use of community organizing to facilitate people's involvement in social forestry activities showed the significance of the following activities:

1. Providing an adequate period for the social forestry officer to integrate into the target community in preparing for initial project activities.
2. Utilizing a community need (e.g., land tenure) as an entry point for organizing upland farmers.
3. Defining the basic organizing units (e.g., sitios, barangays, etc.).
4. Developing community leaders for broad based mobilization and participation.
5. Convening community meetings to achieve collective and collaborative decisions and actions.
6. Establishing a farmer's organization for upland management.

Initial project experience also indicates that the scope of people's participation in social forestry could include planning and decision making, project implementation and negotiation on sharing of project benefits.

It has been observed that the presence of trained community organizers who can help build up the capability and confidence of the people to participate in their own development is a critical factor for success. Project experiences also show that the following practices could promote people's participation:

- (a) provision of an immediate incentive;
- (b) flexibility in project design;
- (c) decentralization of authority;
- (d) orientation and training; and
- (e) linkages with other government agencies and non-governmental organizations.

People's participation in all aspects of the development project requires a significant change in the orientation of both the target community and the development agency.

At the Higher Levels

There is a wide range of information sources regarding conditions, opportunities and constraints for forestry extension to target groups. These could include DENR field staff (through reports and interaction in field visitation); research and academic institutions (through case studies, research findings, and process documentation); non-governmental organizations (through reports and field visitations), and farmers groups and forest users (through consultative meetings and public hearings).

Process documentation is designed to document and record objectively, systematically and comprehensively the learning experience, activities, processes and issues in the implementation of social forestry projects. It is a vital tool in the agency's learning process. It provides a dynamic feedback mechanism for effective management of pilot projects as well as generating field information and learnings. This is, however, carried out on a pilot scale. Appropriate training in this method has been provided to project staff in some pilot projects. On a national scale, there is not yet much support given to field staff in the community appraisal and process documentation of projects. There is still a need to further simplify both the RCA and process documentation instruments.

Implementation and Program Management

The major constraints in implementation and program management are as follows:

1. Conflict in some of the goal(s) of the development agency and the need(s) of the target group(s). For example, the need to plant trees (agency) versus the need to grow food crops (target group). Hence, the message of an extension program must be designed to bridge this gap.
2. Motivation of extension staff is an important factor to consider. As mentioned earlier, 73% of the ISFP personnel hold non-permanent positions with a low salary and minimal allowances. A social forestry officer is responsible for the management and implementation of more than one social forestry project. His workload includes land tenure, technology transfer and promotion, community organizing, training of farmers, and administrative chores. This problem is further aggravated by the lack of training of ISF personnel.
3. Upland farmers prefer to undertake agricultural activities rather than forestry projects for two reasons: (a) to satisfy their immediate need for food and income, and (b) the belief that once land is agriculturally developed they will be able to secure title to it. Thus, it is most urgent to promote viable site-specific agroforestry technologies coupled with a strong financing, marketing, and information support system. It is imperative to prove and convince target groups that more benefits could be derived from forestry activities rather than agricultural projects. The economic, environmental and social impact of forestry activities should be underscored.

4. The credibility of government extensionists is a critical factor. In the case of the agency, the shift from "regulatory or forest guard" into "developmental or extensionist" orientation posed some initial difficulty. However, this is eliminated by consistently showing sincere concern towards the development of the target groups.
5. Weak monitoring and evaluation systems for forestry extension (qualitative and quantitative).
6. The determination of target groups, areas and situations that have shown to respond best or least to forestry extension is very difficult. This can be attributed to the highly diversified and site specific target groups and project areas.
7. The insurgency problem, inaccessibility of many of the agency's target groups, lack of public appreciation, inadequate logistical support, and uncoordinated forestry extension programs pose major constraints.

Opportunities

The DENR's adoption of the basic principles of ecological sustainability, social equity, and economic efficiency in the management of the country's environment and natural resources is considered an opportunity to bridge the gap between the mandate of the agency and the needs of the target groups.

The social consciousness growing in many of the agency's senior staff is a positive development essential to boost an effective forestry extension program. Giving equal emphasis to social interactions and processes rather than simply concentrating on the technical aspect of forestry is a step in the right direction. The populace's increasing awareness of the value of environmental development and conservation could lead to a more effective and successful forestry program. The high spirit of volunteerism among non-governmental organizations and civic groups widens the agency's range of partners in forestry extension. The active role of the mass media could hasten the implementation of a more intensified communication and information program on forestry.

The DENR is currently being reorganized, and the following features of this change may lead to a more intensified forestry extension program:

1. **Decentralization** - The proposed reorganization involves the deployment of more personnel in field offices. Under the reorganized DENR, 20,191 people, or 84% of its total manpower resources will be assigned in the field. The following field offices shall be organized: 13 Regional Environment & Natural Resources Offices; 73 Provincial Environment & Natural Resources Offices; and 174 Community Environment & Natural Resources Offices. This is envisioned to hasten the delivery of services to the agency's target groups, especially in rural areas.

2. Departmentwide reorganization - In field operations, concerns on land management, forest management, mines and geo-sciences, environment and protected areas and ecosystem research are integrated into a single DENR field office. This means the pooling and sharing of resources among these various sectorial offices.
3. Creation of Public Affairs Office - This office shall serve as the public information arm of the Department and shall be responsible for the dissemination of information on environment and natural resources development policies, plans, programs and projects. A similar set-up is organized in the 13 DENR Regional Offices throughout the country.
4. Proposed creation of positions for Social Forestry Officers and Social Forestry Technicians - For the first time since the institutionalization of people oriented forestry programs in the early 70's, permanent field positions for social forestry officers and social forestry technicians will be created. This is expected to boost the morale of ISFP field staff. Under the proposed staffing pattern of the reorganized DENR, there will be 1,064 field positions for social forestry (176 social forestry officers and 888 social forestry technicians).

PRIORITIES AND STRATEGIES FOR EXTENSION DEVELOPMENT

Since the threat to the country's remaining natural forest resources is the ever growing population, there is a need to intensify people oriented or community-based forestry programs with strong information and extension support system.

Forestry extension programs have to be reoriented towards rural development with the goal of developing human and forest resources. Forestry extension program should be reinforced by support services.

There is a need to promote more effective extension methodologies such as cross-farm visits, barangay forums, farm demonstrations, extensive use of visual aids, training of community organizing volunteers, agroforestry volunteer technicians, or extension aides, and others.

There is a need to plan and implement extension programs from the "receivers' or farmers' points of view" rather than the "givers or agency's perspective." There is a need to promote a more "integrated product approach" rather than the "traditional single commodity approach" (e.g., rice, corn, giant ipil-ipil, etc.).

Extension concerns should be extended to include not only the technology production aspect but also its marketing and financing.

There is a need for massive manpower training on forestry extension and a concerted and coordinated effort on forestry extension among various government agencies, academic and research institutions, including non-governmental organizations.

More effective monitoring and evaluation systems also must be developed.

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BETAGI COMMUNITY FORESTRY

1

A. Alim

Betagi is a village about 20 miles east of Chittagong. The entire area was once a protected forest, but encroachment caused it to be completely denuded by 1975. Afforestation efforts by the Forest Department failed due to pilferage, and Forest Department employees were even assaulted whenever they tried to prevent the theft of forest products.

A new plan was therefore developed with the help of Forestry Department staff, local officials and landless farmers. Each farmer was allowed to lease about 4 acres annually for the first 5 years. In the original plan, farmers were to be given 25-year leases if they successfully brought the land to full production in 5 years. They were so successful however, that they eventually obtained title to their land.

Selection of Beneficiaries

Project staff wanted to ensure that only landless people would benefit from the program. Local officials were asked to prepare a list of landless agricultural laborers. The list was read aloud at a meeting attended by officials and landless labourers. The audience objected to the first name mentioned, as he was a government worker and the son of a local official at the meeting. The name of the official's son was removed, and the landless people nominated another. Eventually, 101 people were chosen.

Organization

Farmers were organized into a cooperative to better resist the efforts of the elite to obtain their land. The elite filed many cases in civil courts against the landless, and in some cases huts were burned and crops damaged, but no land was obtained in these ways. Farmers organized into 12 self-selected, labour-sharing groups of 5-10 members. Group members selected one group leader and one deputy leader. These leaders selected the Chairman and Secretary of a cooperative formed by all the groups.

If any member of a group failed to meet the requirements of the project, other members of his group could lose financial and technical assistance, as well as cancellation of land allotment in extreme cases. This system was set up to create a strong social pressure to work hard. At present, 21 of the 101 original farmers have been screened out. Some of these were people who had very small businesses such as a wayside tea shop or rickshaw repair business and who left the area after receiving the first installment of bank assistance.

1 Ret'd Chief Conservator of Forests, Bangladesh.

Finances

A small amount of credit was given for agricultural supplies and several small subsistence allowances were released over a 2-3 month period. A bank originally extended the loan on the personal security of the author. After 1 year, however, senior bank officers released the author from his responsibility as a guarantor after they visited the area and saw the progress that had been made. All disbursements to farmers and their repayments were made publicly at weekly meetings and entries were marked in the bank passbooks of farmers. Illiterate farmers received 3 months of training in reading and writing to enable them to understand this process.

The Cropping Pattern

The soil of the area was eroded and very poor. Annual rainfall is about 100 inches. Farmers received seven days of training in agriculture and agroforestry, as well as in cooperative and human development. Farmers and project staff identified short, medium and long term crops that would rehabilitate the land and provide farmers with the food they needed. Short-term crops selected include soybeans, cowpeas, watermelon, chillies, ginger and turmeric. Lemon, papaya, pineapple and guava were mid-term crops. Long term crops were multiple purpose trees such as jackfruit, Albizzia procera and other trees such as Mahogany, Eucalyptus and Gmelina. Farm boundaries were fenced with pigeon peas. Land-use plans detailing what would be planted were drawn up before the land was released.

The entire area is now fully covered with different types of vegetation, and the soil has improved tremendously. Farmers have become more than just self-reliant economically, as they also hire others for farm work. A local school also is run without any help from the government. Some have branched out into other income-producing activities, such as poultry rearing and cattle fattening.

Conclusion

The program has been so successful that the farmers have received title to the land, and it is being used as a model for other projects in Bangladesh. The key principles of the Betagi model are land tenure, credit, organization of farmers into small groups of similar socio-economic status, use of social pressure for development, development of a land-use plan before land is released, and training of farmers in agriculture, agroforestry, cooperatives and reading and writing. Extension workers also need training in how to understand and work in a participatory manner with farmers.

3.3 ORGANIZATION AND TRAINING



Result of farmers' training in bee-keeping

ORGANIZING FORESTRY EXTENSION AGENCIES

1

Napoleon T. Vergara

1.0 INTRODUCTION

Urban planners often state that the ideal way to develop a city is by starting from nothing. The site would be free of buildings and other obstacles, zoning codes could be formulated and implemented without generating controversy, streets could be laid out in desired patterns without running into obstructions, and utilities systems (water, electricity, telephones) can be set up readily. When all the structures are finally in place, the city that emerges would not be as chaotic as those that grew spontaneously without the benefit of planning. Instead, it would be as aesthetically pleasant and ecologically sound as the two known capital cities planned and built in this ideal manner: Brasilia in Brazil, and Canberra in Australia.

Organizing a forestry extension agency to support resource development, environmental rehabilitation and rural upliftment programmes is pretty much like establishing a city: it would be more desirable, though not always possible, to start from zero. If an extension organization is to be built up from, or superimposed upon, an already existing organization that has been designed for some similar but not necessarily the same purpose, problems and complications are bound to be encountered.

This paper shall attempt to draw attention to problems, constraints and opportunities in setting up forestry extension organizations. It is based largely on practical experiences and empirical observations from some countries in Southeast Asia, including the on-going UNDP/FAO/SIDA Forestry Extension Project in Thailand.

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Participatory Forestry Development Through Extension, Thailand.

2.0 THE NEED FOR ORGANIZATION IN EXTENSION AGENCIES

2.1 The Complex Nature of Extension

Extension is defined briefly for this paper, as the process of selecting and collating relevant and useful knowledge and information generated by researchers and innovative practitioners, converting them into forms that are readily comprehended and adopted by the layman, and diffusing them among the mass of potential end-users and beneficiaries. It is a difficult and complex undertaking because it has to integrate both social and biophysical problems and issues. Its degree of complexity may further be heightened by the variability of social, ecological and economic conditions under which the target clientele exist; the variability of the technologies that these intended beneficiaries employ; the range of technologies that change agents are trying to extend to them; and the extension approach used, whether simply imposed from above, as in "top-down" extension, or extended in a participatory manner with substantial farmers' involvement in planning and implementation. Because of these characteristics, an extension organization will also be complex.

2.2 Agricultural vs. Forestry Extension

Under better-known and more widely-applied agricultural extension techniques, the target beneficiaries are generally lowland farmers who operate within a relatively narrow range of agroecosystems (mostly lowland areas); have a similarly narrow spread of crop species to raise, needs to satisfy, markets to fill, and problems to confront. Consequently, agricultural extension is comparatively simpler and easier to implement. In lesser-known and more recently-employed forestry extension approaches, on the other hand, the clientele are much more diverse, ranging from small, family-operated, wood-based enterprises to huge forest-based corporations; from small household-operated farm forestry to upland farming systems that raise a wide mix of subsistence and cash crops, including annuals, perennials, and livestock. Furthermore, forestry extension activities cover areas dispersed over a broader range of agroecosystems, from flat arable lowlands (as in the case of some parts of India and Thailand), through gently rolling slopes (as in some parts of Indonesia) to steeply sloping inaccessible uplands (as in the Philippines). For these reasons, forestry extension is considerably more difficult to carry out than agricultural extension.

2.3 The Necessity of Organizing Forestry Extension Agencies

In light of the complex nature of forestry extension, it is imperative to organize an implementing agency that can efficiently diffuse and transfer information and technology, uplift the rural poor and protect or rehabilitate vulnerable environments.

3.0 SOME FORESTRY EXTENSION ORGANIZATION MODELS

Objectives dictate function, which in turn dictates structure. This principle applies whether the task is bridge construction, automobile manufacture, or establishment of a government extension agency. Thus, prior to organizing an extension agency, it is essential to (1) examine closely and set up clearly its goals and objectives, and (2) to ascertain the nature, scope, sequence and interrelationships among the functions and activities that it will have to carry out to achieve its stated objectives. These two important initial tasks will lead to, and become the basis for, designing the basic extension organization. This design can later be improved and modified in an iterative process as flaws become apparent during actual operations.

3.1 Functions of a Forestry Extension Agency

Forestry extension agencies often perform four sequentially related functions or activities, namely:

- (A) Technology generation - Applied (rather than basic) research may be carried out by an extension agency. Problem-solving activities (example: determining the optimum spacing between hedgerows of a given nitrogen-fixing tree species to maximize soil conservation and fertility enrichment under certain slope gradients, soil type and rainfall intensity) could form the core of its research undertakings, and the research outputs could lead to the generation of technology that can be directly passed on and immediately applied by agroforestry farmers.

Some basic scientific research (as opposed to applied research) is also needed in extension-driven integrated cropping systems (for example: genetic search for or improvement of rhizobia strains that can induce greater nitrogen fixation and, thus, higher crop yields) but such fundamental studies are usually conducted by autonomous scientific research institutions outside of extension agencies, but with which they may have strong links.

- (B) Technology packaging is a straightforward activity that requires considerable specialist skills. It involves selecting and collating new scientific as well as empirical knowledge and information which have great relevance to, and high potential for, improving farm production systems; combining and converting this knowledge into forms that are readily used and easily adopted; and passing these "technopacks" to the extension agents for transfer to intended end-users. Like in the packaging of products for the market, the manner in which a technological innovation is packaged and presented may influence how widely it will be used by the target clientele.

- (C) Technology diffusion - This is the core activity of extension organizations. Sometimes an extension agency may concentrate all its energies and resources on this task alone and delegate the other activities to external (i.e., non-extension) units. This specialized task of technology transfer is carried out by extension agents using various extension methods and tools, and operating at the interface between the farmer and the researcher. In other words, the agent is a "middleman" or "broker".

Evidence from previous extension projects indicates that technology transfer can be most effective if it is performed in a "participatory" manner, e.g., if the intended beneficiaries are actively involved in identifying the high priority local problems and needs, and take part in the selection of suitable production or land use systems to solve those problems.

- (D) Monitoring/Evaluation - Monitoring is the process of determining whether extension activities are proceeding in accordance with plans and timetables. It is normally carried out in-house (i.e., by the extension agency itself).

Evaluation, on the other hand, ascertains whether objectives have been achieved, and determines the reasons for success or failure. This is also referred to sometimes as extension research, especially when it is used to determine the relative efficacy of various extension strategies being tested under various conditions. It should not, however, be mistaken for the research involved in technology generation described earlier.

In order not to become a self-serving exercise, evaluation is normally performed by external specialists rather than by staff of the extension agency itself. Participatory evaluation, in which the intended recipients of benefits from the project collaborate with the project implementors and external specialists in assessing the achievement of ultimate goals, is regarded as the best way of gauging extension project success.

Evaluation results can be useful for making mid-course corrections in project implementation if they are conducted periodically during the project rather than after its termination.

3.2 Function-based Structure of an Extension Agency

Some extension organizations are structured on the basis of the above major functions. Thus, a model illustrating the relationships among the extension functions can also serve as a systems model for an extension organization (Fig. 1).

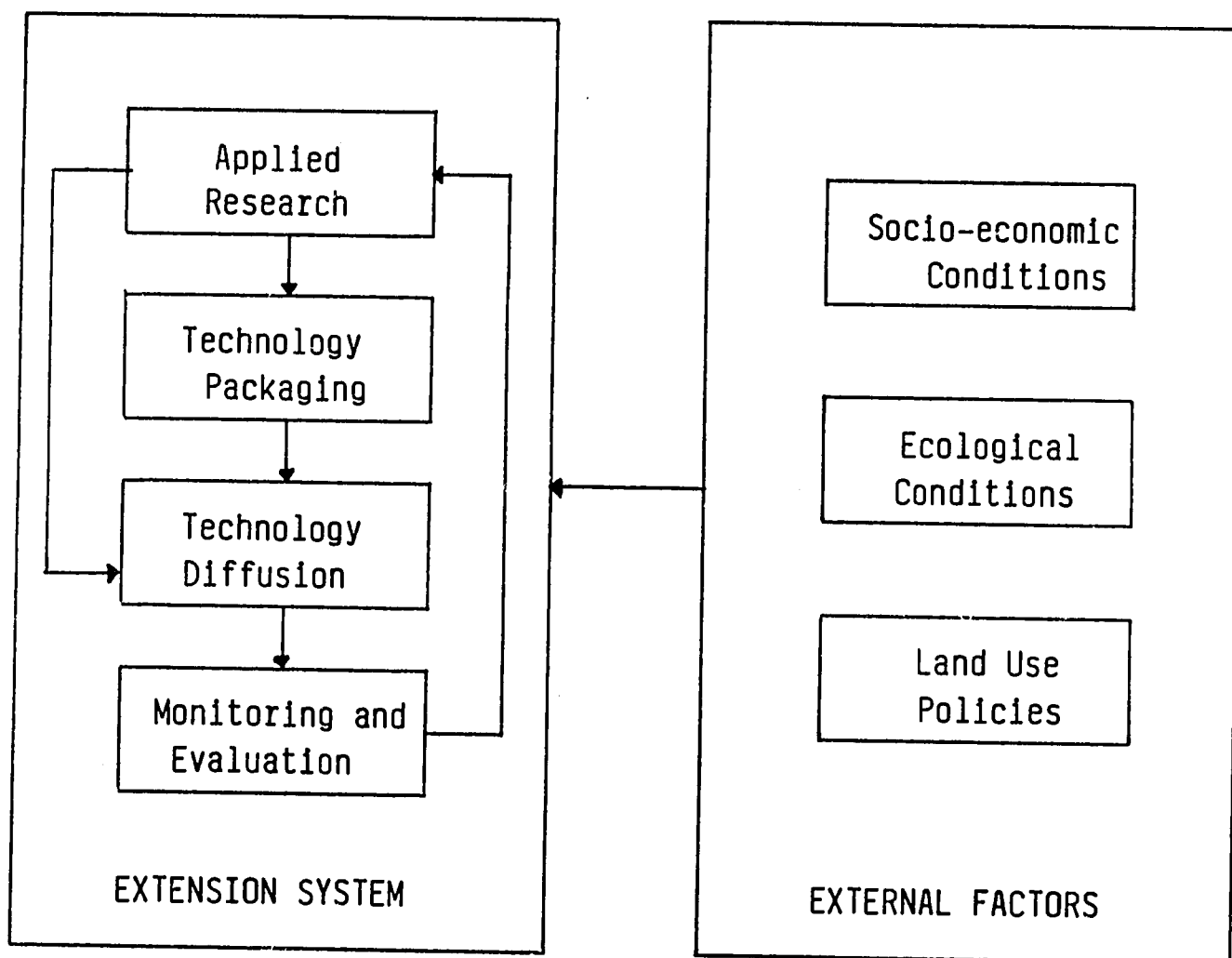


Fig.1 A Function-based Extension System Model
(Note the External Factors)

One advantage of showing extension in a systems model is that it can illustrate clearly the sequential as well as feed-back interrelationships among the functions (elements), and at the same time show the factors that are external to, but have a strong influence upon, the functioning of the extension organization. For instance, in Fig. 1, the flow of materials and information from top to bottom, and the feedback loop that indicates the recycling of problems to researchers, can be readily traced. Furthermore, the impact of such exogenous factors as land policies, socio-economic conditions, and ecological situations, can be easily seen and recognized.

A major weakness of a function-based extension organization model is that while it may clearly indicate the sequential relationships among the groups of activities, it does not show where these activities are to be carried out, and who will carry them out. In looking at Fig. 1, for instance, one cannot ascertain whether all the operations are to be based at the central HQ of the agency or at the field level. In brief, it fails to show the geographic distribution of tasks.

3.3 Geographical Structure of an Extension Organization

An alternative organizational set up to remedy this weakness is shown in a pro forma organization chart in Fig. 2. This chart is a crossbreed between a function-based structure (as illustrated in Fig. 1) and a set-up based on a geographical hierarchy. Immediately below the head forestry extension officer (who may be the head of a forestry extension division) are four sections which carry out the four (or possibly more) major functions. Under the central HQ are four more hierarchical levels: regional forestry extension office (FEO), provincial FEO, district FEO, and finally, village FEO. At each level, extension-related activities could be undertaken: all four major extension functions (research, technology packaging, technology transfer and M&E) at the national level; extension planning, supervision and coordination at the regional level; supervision and coordination at the provincial level; coordination and implementation at the district level; and implementation at the village level.

The clearly defined vertical linkages, from the national FEO through the village FEOs, indicate that a sustained flow of supporting materials (e.g., seeds, seedlings) and information (e.g., data on growth, yield, incomes, costs, etc.) could and should be made available to the lower levels on a sustainable basis, and that problems encountered at each level, uncovered through the monitoring/evaluation function, could be readily sent back to the research group, following the vertical lines of communication, for a quick study and possible solution. The new information (solution) may then be sent down through the same channel to all the lower levels.

The chart could also be interpreted to mean that there is a high degree of de-centralization of functions: planning and coordination could and should be carried out also at the middle and lower levels to ensure that extension projects and strategies for their implementation are sensitive to variations in local socio-economic and ecological conditions.

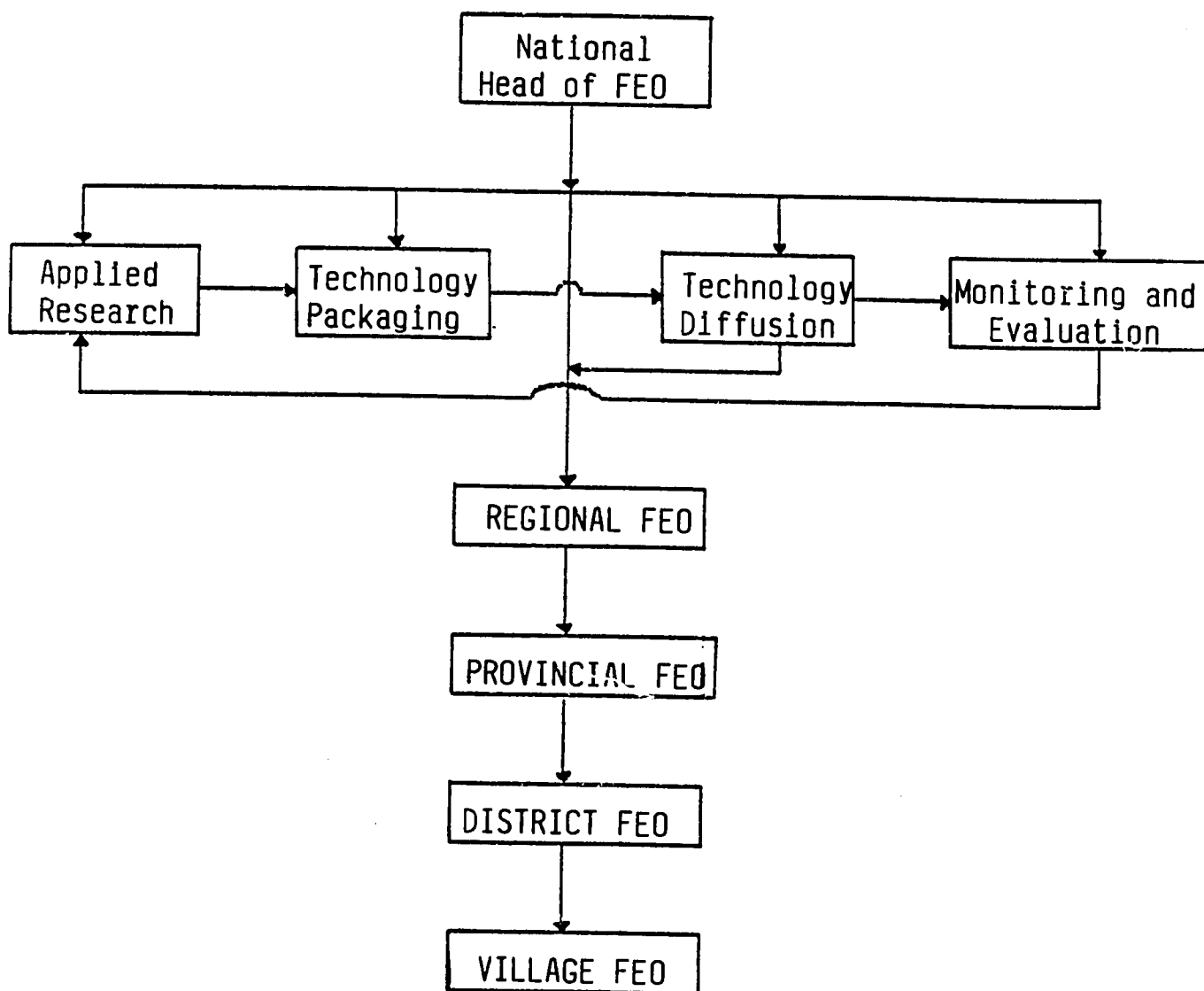


Fig.2 Proforma Organization of a National Forestry Extension Agency

4.0 ESTABLISHING AN EXTENSION ORGANIZATION

The model shown in Fig. 2, or any variant based on it, may be set up as an organizational structure for a national forestry extension agency, if deemed suitable.

Three possible situations may be encountered in establishing a government extension organization in a forestry department or bureau:

- (A) No extension unit exists in the department, and no extension activities are being carried out.
- (B) No extension division exists in the department, but one of the divisions carries out extension-related activities (example: promoting agroforestry) to achieve its technical forestry objectives (example: rehabilitation of denuded forest lands with the involvement of farmers).
- (C) No extension division exists, but several of the divisions have sections that perform separate extension-related activities (example: promotion of forest conservation in the separate fields of watershed, parks, silviculture, etc.)

4.1 Setting up a New Extension Organization

If Situation A prevails and no pre-existing extension units serve as impediments, the creation of a new forestry extension division should be relatively easy, as discussed in Section 1.0. Budgetary limitations and lack of political will to create a new agency could be the only possible major obstacles.

One minor dilemma that could confront organizational planners under Situation A is nomenclature. A rose by any name is just as sweet, as the saying goes, but the name of a division greatly reflects the nature and scope of its functions, so planners should be careful and try to avoid, whenever possible, using a name that suits present fads but does not fit the roles designed for the organization.

One example of a name/function mismatch is where a "forestry extension division" is created, but is staffed, equipped, and mandated to carry out purely "public relations" work, such as image-building through "cosmetic" media releases, propaganda and other similar activities. While it is true that there is an element of "PR" in extension work, particularly in that phase of extension which is focused on creating public awareness about forestry issues, public relations is much narrower than, and should never be equated to, forestry extension. In the particular example given above, the organization should be properly labeled "public relations office" to stop the confusion among its staff as well as among the staff of its sister offices.

A reverse example, which at one stage existed in Thailand, can further illustrate how an agency's name does not suit the function assigned to it. A "public relations office" was organized, and one of its mandates was to send its central and regional staff to the countryside to alter the negative attitudes of the rural people towards forestry. This function can be more properly classified as forestry extension rather than mere public relations; carrying out that mandate is a tall order which "PR" work alone could not possibly achieve.

It is not by accident that other divisions in the same department had to set up their own extension sections to obtain the extension service that the "PR" office could not provide.

4.2 Reorganization of a De Facto Extension Unit

Reorganization is possibly the logical step to take in Situation B, where no formal extension unit exists, but where one of the divisions performs extension functions to further its goals. The Philippines could serve as an example of this situation. The Forest Management Bureau (FMB) does not now have a forestry extension division, but it has created a premier extension-like unit named the Social Forestry Division (SFD). SFD carries out a well-received forest-based, people-oriented, rural-development type forestry programme that has gained both national and international attention. This is in keeping with its mandate to minimize destruction of forests by providing shifting cultivators with long term tenures and inducing them to employ land use systems that do not degrade the land. It has assisted many landless people in gaining land stewardship certificates over parts of the public domain, and has introduced agrotechnology (mostly agroforestry) for less-than-ideal farmsites to achieve sustainability, reduce the need by farmers to shift to other farmsites, and, in the long run, minimize encroachment on the remaining forests.

The problem is that, as reflected in its name, SFD performs extension activities only within the currently important but narrow confines of social forestry project areas. It does not include extension work in, for example, the equally important field of watershed protection and management, nor in protection and conservation of wildlife. At the moment, the escalating forest destruction caused by increasing people pressure on the residual forest resources makes social forestry an ecologically appropriate and socio-economically acceptable solution, and the social forestry programme is considered a suitable extension approach. However, the other aspects of forestry that are equally in great need of extension support will not receive the attention they deserve as long as extension efforts are the exclusive domain of the "social forestry division".

It appears that, as a reorganizational remedy, a broader-based "forestry extension division" may have to be created to "cure" this imbalance. Such a measure, in simple terms, would entail, first, the renaming from "social forestry" to "forestry extension division" to reflect the correct nature of its bureau-wide tasks; second, the expansion of the scope of its extension activities to embrace the various facets of forestry that require extension support, without necessarily diminishing its social forestry thrust as demanded by present socio-economic and ecological conditions in the country; and third, strengthening its staff and increasing its other resources so that it can cope with its broadened area of responsibility.

An additional "benefit" of the reorganization as outlined above is that it will preclude the creation of several uncoordinated "mini-extension" units in the other divisions to fill the extension needs that they feel are not being satisfied by the present social forestry division.

In pursuing the suggested restructuring, planners would probably encounter some resistance from among the present social forestry staff. Some objections would be professional in nature. For example, for a division that has achieved a significant number of its goals and has received acclaim from farmers, researchers and administrators, it would be unwise to dilute its tasks and its staff at this time and risk becoming too large, too spread out, and ineffective. Most of the reasons would be on the personal level, however. For example, people in key posts in SFD might feel threatened if a new forestry extension division caused some sections to be modified and new ones created, and they might object to the reorganization. If these objections can be solved to everybody's satisfaction, the conversion and expansion of social forestry can go ahead without much difficulty.

4.3 Unification of Separate Extension Units

It is not unusual to find that several divisions under one department may have recognized and felt the need for extension as a tool for achieving their technical objectives, and may have taken the extra step of creating extension sections. Under such circumstances, a given bureau or department could end up having several extension sections operating independently of each other (Situation C).

Two undesirable situations could arise from this spontaneous emergence of separate extension units: (1) the fractured extension efforts lack coordination and may even, at times, appear contradictory. For instance, the extension section of a forest management division may inform farmers that it is all right to farm on sloping land provided that they practice soil conservation through agroforestry, while the extension arm of a watershed management division may insist that sloping areas in watersheds are strictly off limits. Such diametrically opposed advice coming from extensionists under the same department could create confusion among hill farmers, and could result in the loss of credibility and effectiveness on the part of the extension sections; (2) the various sections may end up with a substantial amount of wasteful duplication of efforts which government organizations of third world countries can ill afford.

A logical solution to such a predicament would be to pull together and unify these separate sections under one forestry extension division. While this restructuring action seems simple, there may be some obstacles. First, the staff of the extension sections would be hesitant to give up their "independence" and would resist being "swallowed" by the new extension division. Second, assuming they would consent to assimilation, there would arise the question of whether they could retain their ranks and face no demotion when they move to the new organization. Third, redirecting the old staff from their old goals and set ways towards the objectives of the new organization could be difficult. In the end, the new forestry extension division could become watered down through a series of compromises and negotiations with the old staff, and could turn out to be much less effective than originally envisaged.

5.0 ORGANIZING FOR IMPROVED EXTENSION COLLABORATION

The earlier discussion of the complexity of extension (Sections 2.1 and 2.2) provides a glimpse of the vast area traversed by rural-development activities embodied in forestry extension projects. That preview, in turn, leads to the realization that forestry extension is not the sole domain of foresters but is a "common territory" for foresters, agriculturists, economists, sociologists, anthropologists, and others. It goes without saying that forestry extension could become much more effective if allowed to benefit from the combined expertise of these specialists.

When these different specialists work in the academe, it is often relatively easy to bring them together for collaborative involvement since they are bound by a common academic curiosity to discover what makes people under forestry extension projects behave the way they do, and what stimuli would cause them to behave in different ways. On the other hand, when they are distributed among various bureaucratic organizations whose collaboration is necessary because their functions relate to forestry extension in terms of policy and administration, these experts often find the well-defined territorial boundaries of their offices difficult to cross. In brief, it would not be easy to involve them in a cooperative way to make forestry extension more effective. To overcome this difficulty, it may be necessary to resort to some organizational strategies.

5.1 Organizing at the Top: The "Steering Committee" Strategy

At the top or national level, several ministries or departments perform functions that affect the efficacy of forestry extension. For example, those which carry out land use classification and land tenure-related activities could help in equitable land distribution to minimize rural poverty and help reduce forest encroachment; those engaged in population control functions could contribute to long term reduction of people pressure on forests; and those involved in education and training could help develop alternative skills that may lead shifting cultivators away from the forests, etc. From these examples, it is obvious that many different offices have key roles to play. However, since forestry extension is usually placed squarely on the shoulders of a forestry department rather than distributed among many relevant agencies, such organizations could be

involved only by inviting some of their key officers to serve in "steering committees" organized to provide top-level policy and management guidance for forestry extension projects. For instance, the social forestry projects sponsored by the Ford Foundation in several Southeast Asian countries have adopted this approach with an enviable degree of success.

In projects where this strategy has been applied, two important benefits often emerge: (1) In reviewing project work plans, committee members would normally assess such plans against the backdrop of policies that exist in their respective departments. Thus, they could forewarn the project of possible policy conflicts, and would often offer alternative plans to avoid such conflicts and help ensure smoother extension operations. They may also offer, when possible, to help alter or even eliminate policies that are obsolete and that serve as obstructions to extension projects. (2) They may identify the work of their respective departments that are obviously related, similar or parallel to the project, and at times suggest the pooling of efforts and resources to avoid wasteful duplication and to enhance collaboration and coordination among departments.

5.2 Organizing at the Middle: The "Working Group" Approach

Similar to the "Steering Committee" strategy, but set at the implementation level rather than at the policy level, the "Working Group" approach is one organizational tactic that may likewise be effective in improving forestry extension. Quite often, the members would come from local branches of national offices that are represented at the Steering Committee. For example, local officers of the departments of agricultural extension, community development, health, education, lands, etc. may be involved. There may, however, be other members that are strictly at the local level, such as officers from the village council who could play the important role of inducing greater participation of villagers in the extension project.

The group could help formulate or review local extension work plans and make them more appropriate to the social, economic and environmental conditions at the site of implementation. Since there is a great diversity in local conditions, this type of low-level planning with the involvement of various experts from different local offices could make the forestry extension plan more closely suited to local problems and needs.

5.3 Organizing at the Bottom: Assembling Extension Targets

Extension as a teaching-learning process is known to be most effective when directed to one homogeneous audience at a time. One reason agricultural extension is both relatively easy and effective is that farmers are a fairly uniform group of individuals in terms of their activities, crops, social status, interests, etc. They contrast highly with the more diverse upland farmers who are the usual intended beneficiaries of forestry extension.

One way of overcoming this inherent drawback is to organize the clients of forestry extension into groups that are homogeneous in their types of interests, goals and activities. For example, land owners interested in planting trees as commercial crops may be organized into a "Tree Farmers' Association"; those interested in learning and applying the principles of integrated cropping may be formed into an "Agroforestry Group"; women's groups may be set up based on their common interest in, for example, making more fuelwood readily available for their households. Certain incentives, such as regular mailing of relevant extension materials to clients who have organized themselves, may stimulate the creation of associations.

When formed into groups as outlined above, these clients would be more easy to reach, and specialized extension information made available to them on a regular basis would be relevant and, therefore, useful to all rather than to just a few members of each group.

6.0 EXTENSION SUPPORT ORGANIZATIONS FOR INCREASED EFFECTIVENESS

The extension organization illustrated in Fig. 2 does not show possible opportunities for the creation of support suborganizations which could make forestry extension even more effective. Three separate but interrelated support subsystems under the UNDP/FAO/SIDA Forestry Extension Project in Thailand may serve as examples.

6.1 Demonstration Centers: Seeing is Believing

Resource-poor farmers are generally more conservative in their responses to new production technologies. The major reason for this behavioral pattern is that their outputs and incomes are so meager that they have very little, if any, margin for error in deciding which technology to adopt. Consequently, subsistence farmers are the least responsive to innovation and, therefore, become the least benefitted by new production technologies that are specifically meant for them.

This conservative attitude could be overcome by applying the principle of "seeing is believing". If the technologies that are being transferred can first be demonstrated, the farmers may adopt some of them as soon as they observe how well the production techniques perform and how much they can fill basic local needs.

The best place for such method and results demonstrations would be in farmers' fields, since these would be closest to the real field conditions of the target farms. However, the availability of such demonstration plots would be dependent on whether there are early adopters among the farmers in a certain locality, and whether they apply the technology properly enough for demonstration.

If field demonstration is not possible in farmers' fields, the next alternative is to organize formal demonstration centers in government areas that are strategically located near the target communities and that have ecological conditions similar to the target farms. Three important considerations should be brought into focus in establishing these centers: (1) the technologies to be demonstrated (for example, combination of trees and crops) should be closely related to what the local farmers now employ, and are known and accepted for their productivity and sustainability; (2) the choice of annual crop species should be based on local preferences and markets, but the selection of perennial species for intercropping should depend on four factors: compatibility with the site and with the preferred annual crops, and suitability to farmers' needs (for instance, fodder and green manure) and to potential markets (for example, pulpwood or charcoal); (3) the physical (spatial and temporal) arrangement of the crops should demonstrate site protection (example: erosion minimization to maintain productivity) and production (example: arranging crop components to maximize outputs; or incorporating nitrogen-fixing trees to increase fertility and productivity).

Under the Thai Forestry Extension Project, seven such centers have been selected and are now in the process of setting up the technologies to be demonstrated. When they become fully operational, farmers will be brought to them to view the different land use systems and production techniques. They may more readily believe what they see, and adopt what they believe.

6.2 Mobile Extension Teams for Public Awareness Campaigns

Extension agents, by nature, should be mobile and able to readily move about in their constant quest for positive and in-depth interactions with farmers. However, it is sometimes necessary to set up teams of extensionists who are especially equipped to reach a much wider audience at the sacrifice of depth. These teams are provided with an assortment of audio-visual equipment (video monitors, slide projectors, posters, etc.) and have been assigned three functions: (1) take advantage of their mobility and special equipment to create public awareness among the rural populace in target provinces about the importance of, and need for, trees on farms to increase productivity and incomes of farm households; (2) monitor and evaluate the extension activities of the other extension agents who work at the district and village levels; and (3) to bring farmers to the forestry extension demonstration centers (FEDCs) to view and observe the demonstrated agroforestry technologies. These functions interlock with, and are in support of, the functions of the FEDCs and the district/village extension workers.

Under the Thai Forestry Extension Project, 10 such mobile units based in selected regional forestry offices have been created and equipped as described above.

6.3 Organizing Information for Extension Management

The immensity and complexity of national forestry extension projects sometimes make it difficult to keep track of what is happening and to keep up-to-date on data generated by the project. Consequently, it becomes correspondingly difficult to make appropriate and timely management decisions. To overcome this problem, it is essential to establish a management information system (MIS) for rapid collection and collation of relevant information, systematic storage and rapid retrieval of data as needed, rapid and accurate analyses of the information to serve as the basis for decisions, as well as the basis for developing extension materials for distribution to farmers. A system of this nature has to be supported with suitable microcomputers and relevant trained staff.

With external support from UNDP/FAO/SIDA, the Thai Forestry Extension Project has set up an MIS system by procuring the necessary computer hardware, installing the required software, and assigning appropriate staff. An expatriate expert is going through the recruitment process, and the two-way flow of raw and processed information will commence as soon as the field extension officers start sending in field data.

7.0 CONCLUSION

While there is a growing body of literature on forestry extension today, extension training, including the study of the organizational aspects of extension agencies, continues to be enriched by what may be called an experiential learning process. That being the case, it is hoped that the matters discussed in this paper, which have been largely derived from on-the-job experience and observations, could be of some use among fellow extensionists.

FORESTRY EXTENSION TRAINING

1

H.A. Hilmi

INTRODUCTION

Training for forestry extension may be described as a process whereby information, knowledge and skills needed to carry out extension forestry is transferred to various target groups as and when required. The following main groups may be identified: (i) the general public; (ii) rural households; (iii) village community leaders; (iv) workers at the village level responsible for production of planting stock, organization of planting and subsequent management of woodlots or community plantations; and (v) government officials in charge of extension programs.

What follows is a description of training proposals for government officials at vocational, technical and professional levels. It is a summary of Forestry Extension Curricula, prepared by D. Sim and H.A. Hilmi for the Fourteenth Session of the FAO Advisory Committee on Forestry Education held in Ljubljana, Yugoslavia, 2-5 September 1986.

VOCATIONAL TRAINING

Vocational training is seen as training for a period of one month for junior technical staff of the grade equivalent to Forest Guard in a number of countries to equip them for the post of Extension Assistant. While it is desirable that candidates should have a sound background of such basic forestry activities as are related to possible extension programs in the area, they must show a proper balance between willingness to exert themselves to the limit to serve the local people and a proper regard for official procedures and regulations on the conduct of public affairs.

Staff at this level play a key role in mobilizing and encouraging local people to undertake forestry extension activities. They must, therefore, be able to apply their communication skills in a practical way by providing information, demonstration or training to community leaders or others who can use the knowledge to promote forestry extension activities in the area. They have a role to play in assisting community leaders to plan and organize forestry activities such as the establishment of nurseries and planting on private or community lands.

Training at this level may be carried out at a forestry school or in cooperation with an agricultural training center or a rural development training institute in an area in which practical experience could also be gained.

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Training Course Objectives

The objectives of training at this level are:

- to orient trainees in the basic concepts of an extension program;
- to understand the role of extension staff in promoting such a program;
- to achieve an understanding of the joint contributions of forestry, agriculture, animal husbandry and other rural development programs to improving the environment and standard of living;
- to suggest means by which staff can establish good working relations with the public and assist them in improving their living conditions;
- to develop skills in the techniques of communication and teaching and in the use of a variety of teaching aids;
- to indicate some of the administrative procedures necessary to maintain a smooth flow of support to the public.

Achievement Targets

At the end of the course a student should be able:

- to express clearly the basic concepts and objectives of a forestry extension program and relate these to the area in which he expects to work;
- to have the required skills to meet and discuss with individuals and groups barriers to development and to adapt traditional forestry practices to forestry for rural development;
- to identify areas in which forestry activities can be associated with other rural development programs and help create the necessary linkages;
- to understand the administrative procedures necessary to ensure an efficient flow of support to individuals or groups engaged in forestry extension activities.

Course Structure

The course is divided into four modules, each of which should occupy about 30 hours of group work, divided between class work, practical and field exercises, as circumstances and facilities dictate. In most cases, however, not more than half the time would be spent in a formal teaching situation. In such an intensive program of training, it would be reasonable to expect students to carry out additional work on their own and as much of this may be of a practical nature, arrangements should be made for them to have access to work rooms and equipment outside normal class hours.

Curriculum Outline

The four modules of the course are concerned with:

1. Understanding of concepts; 15-20 hrs. of teaching and 12-17 hrs. of practical exercises.

In the classroom the basic principles of extension and relation of forestry to other rural activities are explained, and forestry techniques relevant to rural development reviewed.

Practical exercises could include visits to local communities to discuss and define problems and visits to forestry and related demonstration areas.

2. Working with people; 10-14 hrs. of teaching and 12-17 hrs. of practical exercises.

Home, farm, group visits; public meetings as well as result and method demonstrations to be presented and discussed in the classroom. Small group discussions with local people and presentation of a demonstration could be considered as practical exercises.

3. Teaching aids; 11-16 hrs. of teaching and 16-22 hrs. of exercises. In both, the principles and practices of audio/visual aids, and preparation of these are central concerns. (e.g. demonstration with diagrams or cut-outs, chalkboard, flip charts, slides/filmstrips, tape recorders, handouts, leaflets, etc.)

4. Administration and implementation; 10-12 hrs. teaching and 16-23 hrs. of exercises, covering surveys, cost estimation and project proposals, travel and work programmes, reporting and management of funds and materials.

TECHNICAL TRAINING

Technical-level training may last about three months for senior technical staff who have undertaken a course of two or more years of post-secondary education in forestry and who, ideally, will have had some subsequent field experience. This will equip candidates to serve as Extension Technicians or Agents who will be involved in the implementation and administration of approved programs of extension activities.

A college providing post-secondary education in forestry and having easy access to suitable areas for practical training would be a suitable location for such a course. The training should ideally be organized in cooperation with an agriculture college specializing in extension.

The function of this level of staff is to provide the local administrative structure through which the needs of the people can be passed to the appropriate levels of the organization which can deal with their technical, social and financial implications. They are envisaged as having responsibilities at village or community level for helping local groups to prepare proposals for approval, preparing budgets for extension

activities and allocating resources to approved projects. They have a major role to play in motivating and training their vocational staff in technical matters, in adapting and passing on new knowledge on extension, and in assisting individuals and groups to carry out extension programs which the people have themselves identified as necessary.

Training Course Objectives

The objectives of training at the technical level are:

- to introduce trainees to the philosophy and methods of extension and the socioeconomic conditions of the area in which they will work;
- to provide an understanding of the techniques and problems of other organizations participating in rural development so as to promote integration of activities within the area;
- to develop skills in determining local needs and developing programs to meet these needs;
- to develop skills in organizing and training staff to achieve these objectives;
- to suggest ways in which forestry and tree-planting concepts can be introduced into general education curricula at primary and secondary levels;
- to indicate the requirements of an administrative structure to secure effective intercommunication both laterally and vertically to implement an agreed program of extension to facilitate rural development.

Achievement Targets

At the end of the training course the student should be able:

- to understand the philosophy and methods of extension and relate them to the socioeconomic factors which apply in his or her area of work;
- to understand the techniques of forestry, agricultural, pastoral, soil and water, public health and rural development activities in the area and the economic and physical problems of development;
- to determine the development potential of an area by organizing and conducting socioeconomic surveys;
- to create an awareness of and interest in integrated rural development in association with other organizations operating in the area;
- to organize activities to assist the public to define problems and to devise methods of overcoming them by local action;

- to train staff to carry out the necessary range of extension activities and to use appropriate aids to teach and implement extension;
- to help to introduce forestry and tree-planting concepts into general education systems;
- to understand the personnel and financial implications of extension programs and reconcile these with available resources;
- to establish and maintain effective lines of communication both laterally with cooperating organizations and vertically between the public and the forestry authority;
- to establish and control an effective administration organization to achieve the objectives of development.

Course Structure

The course is divided into twelve modules, each of which should occupy about 30 hours of work covering class work, practical exercises and field studies, as circumstances and local facilities dictate. The program should be structured to provide opportunities for students to apply the knowledge and skills they acquire in suitable practical tasks. The class work of two or more modules may run concurrently so that the field exercises may also be taken together, allowing a longer period of continuous work in a suitable location.

Curriculum Outline

The twelve modules comprise the following topics:

1. Philosophy and methods of extension; 25-33 hrs. of teaching and exercises.
2. Understanding of relevant soc. econ. factors. (26-32 hrs.)
3. Study of forestry and other practices relevant to rural development (24-36 hrs.)
4. Field study of current development practices, (30 hrs.) including reporting.
5. Organisation and conduct of surveys and other information gathering methods. (25-35 hrs.)
6. Identification and development of an extension programme. (25-31 hrs.)
7. Field exercise in identification or promotion of an extension project. (30 hrs.)
8. Training of staff and volunteers. (23-35 hrs.)

9. Lines of communication and linkages. (22-34 hrs.)
10. Administration (28-34 hrs.)
11. Financial implications (24-34 hrs.)
12. Design of training or administration project by student; (30 hrs.)

Assessment

Assessment should be made on the basis of material submitted in response to each training module.

PROFESSIONAL LEVEL EDUCATION

Professional level education is proposed to last a full academic year and would preferably be given at an institution which would award a recognized higher qualification or degree to successful candidates. While such an institution would certainly have its own regulations for study leading to such an award, it is useful to provide some suggestions on the range of functions for which candidates might be prepared.

It is assumed that candidates would already have acquired a qualification recognized for entry to the professional level of their state forestry authorities, or equivalent appointments, and sufficient experience for them to understand its administrative, financial and field procedures. Three major areas with which they would have to deal, and for which education would be required are communications; professional studies and research; and planning, organizing, and management of extension activities.

In communications, they would have to acquire skills in presenting information on forestry extension matters to politicians, opinion leaders and senior government officials to ensure that these matters receive full and informed consideration in all major policy decisions. Such communications would be based on a regular flow of information and opinion gathered from within their organization at all levels and would accurately reflect the views of the public on these matters. They would have to collect, assess the suitability to local conditions, and disseminate when appropriate, information on forestry extension programs in other countries. They would also have to collect information on new species, techniques, equipment or materials and assess their application to the local situation. From this and from material gathered from their staffs they would have to prepare information and training material to support the activities of the extension organization.

In the areas of professional studies and research, they would have to extend their knowledge of rural sociology and its application to their particular area of work, and the contribution of forestry programs to overall rural development plans. It would also be necessary to review the results of research in these disciplines and consider their application to extension techniques and to review the forms of extension organization

which might be suited to carry out the research requirements of their particular situation.

In planning, organizing and management they would have to assess the importance of forestry in rural development and in agricultural or pastoral systems in their country and devise a strategy to achieve an optimum balance of forestry activities in these areas through extension work. They would have to establish networks of cooperation with other agencies including non-governmental organizations engaged in any sphere of rural development to make forestry skills available to them in their task. They would have to understand and apply the principles of management to preparing or approving programs of extension work within national guidelines and to establish adequate reporting and monitoring procedures to ensure that approved programs are properly executed and supported by planned flows of funds and materials. They would have to establish evaluation procedures at all stages of planning and implementation, involving the client group and all engaged in implementing or funding extension activities. They would acquire the skills necessary to manage, and account for, the resources allocated to them to achieve agreed targets.

Course Objectives

The objectives of the course are:

- to provide an introduction to the range of knowledge and skills a candidate requires to function effectively in a post at the central or management level of a public forestry extension organization;
- to study in depth the range of communication skills which may be necessary to secure a proper understanding of the tasks required to be undertaken, by the authorities who approve and finance extension activities;
- to review certain areas of professional knowledge relevant to extension and areas in which research may be required to improve the performance of an extension organization;
- to study the requirements of planning and organization to enable an extension organization to function effectively at all levels.

Achievement Targets

- to establish an effective information-gathering and communication system within an extension organization;
- to prepare and disseminate information on extension matters to appropriate influence groups and to members of public authorities;
- to identify and use effectively appropriate channels of communication with both external and internal cooperating agencies;

- to have a sound understanding of the function and requirements of mass communication;
- to have a basic knowledge of the technology of communication;
- to be acquainted with the principles of rural sociology, the concepts of property and wealth in the area and of domestic influences in decision making;
- to understand the relationship of forestry to overall rural development programs and be able to identify specific areas or programs to which it could make a significant contribution;
- to be sufficiently acquainted with the techniques, organization and fields of research relating to forestry extension programs to participate in, or administer, research programs;
- to appreciate fully the current status of forestry extension and associated development programs in the country;
- to identify and utilize local resources for development;
- to recognize the effects of such factors as marketing, transport, and institutional arrangements on development programs;
- to understand the effects of broad economic policies and the barriers to increased production and productivity on extension programs;
- to identify factors which promote change in established systems;
- to adopt the necessary procedures for identifying, planning, implementing and evaluating programs of extension;
- to understand the requirements of a suitable organizational structure and personnel policy for an extension organization.

Course Structure

The course is divided into three sections: Communications; Professional Studies and Research; and Planning and Organization, which can be studied concurrently or consecutively as circumstances require. In addition to the suggested course work for each module, it is assumed that project work, appropriate to the facilities and conditions prevailing at the time, would be required.

Curriculum Outline

Teaching and exercises in the 24 modules in the professional curriculum, comprise the following topics:

I. COMMUNICATIONS (200-275 hrs.)

1. Establishment of an information system (34-45 hrs.)
- 2,3. Preparation and dissemination of information (2 modules : 70-93 hrs.)
4. Channels of communication with cooperating organisations. (34-46 hrs.)
5. Mass communication (31-41 hrs.)
6. Communication techniques (33-51 hrs.)

II. RESEARCH AND PROFESSIONAL STUDIES (225-285 hrs.)

1. Rural Sociology (23-33 hrs.)
 2. Property and Wealth (25-31 hrs.)
 3. Domestic Organization (30-38 hrs.)
 4. Forestry and rural development (25-35 hrs.)
 5. Project activities (32-42 hrs.)
 6. Research organization (30-46 hrs.)
- * Student monograph and research plan on selected topic (60 hrs.)

III. PLANNING AND ORGANIZATION (370-450 hrs.)

1. Current status of forestry extension in the country (26-32 hrs.)
2. Current status of associated development programmes (44-54 hrs.)
3. Availability of local resources for development (22-30 hrs.)
4. Marketing and transport (30-36 hrs.)
5. Cooperation between related groups (26-30 hrs.)
6. Economic review of sector (35-45 hrs.)
7. Identification of immediate barriers to increased production/productivity by individuals (32-42 hrs.)
8. Management and change (8 hrs.)
9. Programme identification and planning (53-65 hrs.)
10. Implementation of programmes (24-30 hrs.)
11. Structure of an extension organization (53-61 hrs.)
12. Personnel policies (14-20 hrs.)

Assessment

Assessment would follow the pattern normally adopted by the teaching institution for courses at professional level. Project work in conjunction with the modules of the course would provide a useful basis for assessment.

FACTORS DETERMINING ESTIMATION OF TRAINED EXTENSION STAFF NUMBERS

- Size of area to be served;
- Diversity of agricultural and tree-planting practices;
- Size and complexity of households;
- Number and educational level of potential clientele;
- Complexity and scope of programme;
- Ease of communication between staff segments;

- Mobility of extension staff;
- Educational level of extension staff;
- Major extension methods to be used to reach various target groups.

Farming Systems and Extension Staff Ratios

<u>Farming System</u>	<u>Ratio of Junior Technical Staff to Farmers</u>
1. Tree-Crop Farming	
a. Traditional	1 : 700
b. Improved	
- initial stages	1 : 500
- established stage	1 : 1,000
c. Compound land (intensive cultivation)	1 : 500
2. Sedentary Arable Farming	1 : 700
3. Mixed Farming	
- initial stages	1 : 250
- established stages	1 : 500

Staffing Ratios

- | | |
|--------------------------|--------------------------|
| 1. Professional (P) | 3. Junior Technical (JT) |
| 2. Senior Technical (ST) | 4. Vocational (V) |

<u>Ratio Examples</u>	<u>P</u>	<u>ST</u>	<u>JT</u>	<u>V</u>
Crop Husbandry	1	2	5	6
Farm Mechanization	1	2	4	20
Livestock-Intensive	1	0.5	1.5	1.5
Livestock-Extensive	1	1.5	2	5
Animal Health	1	5	6	7
Fisheries Administration	1	1	5	12
Forestry Extension	1	2	5	6
Forestry Res. + Training	1	1.5	1	1

(Source: FAO Economic and Social Development Paper No. 10 - Trained Manpower for Agricultural and Rural Development)

TRAINING DISTRICT FOREST OFFICERS IN EXTENSION PLANNING

1

Cesar M. Mercado

INTRODUCTION

This paper discusses the experience of the UNDP Asia and Pacific Programme for Development Training and Communication Planning (UNDP/DTCP) in training District Forestry Officers and District Watershed Management Officers on extension planning in Nepal. The forestry officers are referred to collectively as "District Forestry Officers" (DFOs).

The paper traces the development of the DTCP training course on Forestry Extension Planning (FEP) in terms of its objectives, framework, component plans, features, approaches, and its continuous improvement through constant monitoring and evaluation.

DTCP TRAINING ON FORESTRY EXTENSION PLANNING

Development

As a regional unit of the UNDP Operation for Project Execution (UNDP/OPE), DTCP's main objective is to strengthen the capability of governments in the region to improve their rural development programs in benefiting rural people. This is done by strengthening the institutional capability of the agencies in development support communication, staff training, field extension, monitoring and evaluation, and management.

Since 1980, DTCP has been involved in three UNDP/FAO-supported forestry projects in Nepal. These projects have provided the core experience in developing the Forestry Extension Planning course for DFOs.

The three UNDP/FAO forestry projects in Nepal were the:

1. Community Forestry Development Project, NEP/80/030,
2. Soil Conservation and Watershed Management Project, NEP/80/029;
and
3. Watershed Management Project, NEP/85/008, which is actually an extension of NEP/80/029.

1 Planner/Programmer and Monitoring and Evaluation Specialist, DTCP.

Under subcontract arrangements, DTCP worked with HMG (His Majesty's Government) and FAO staff in establishing and/or strengthening the extension capability of the Department of Forests and the Department of Soil Conservation and Watershed Management (now Department of Watershed Management) through the training of their project staff on development of communication materials, extension planning and other related activities. From 1981-87, DTCP conducted a total of about 10 training workshops on forestry and watershed extension planning for District Forestry Officers and District Watershed Management Officers of the three projects. In addition, DTCP staff have assisted the projects in implementing communication and extension activities through a large number of advisory missions to Nepal. These experiences have given DTCP a perspective of the special needs of DFOs in improving their capability to conduct extension activities.

DTCP also has drawn lessons from its occasional country training courses and regular regional training courses in its effort to improve the quality of the Forestry Extension Planning course for DFOs. The training courses include:

1. Training Planning
2. Production of Extension Materials
3. Communication Campaign Planning
4. Workshop on Monitoring
5. Workshop on Evaluation

Monitoring and evaluation of these training courses have influenced the content, presentation, and management of FEP courses for DFOs.

Objectives

An assessment of the training needs of the Community Forestry Development Project conducted in 1981 (Manandhar et al., 1982) revealed that "forestry staff at various levels clearly lacked the knowledge, attitude and skills needed to run an effective extension service... Being technically trained foresters, they know a lot about trees, but very little about working with people." Based on the above findings, the main objective of DTCP's training course on Forestry Extension Planning for DFOs was "To develop DFOs knowledge, attitude and skills in extension planning." This objective continues to be relevant for most of the present staff of forestry projects. Casual inquiries among FEP participants revealed that many DFOs still need to know the objectives of their extension activities. It was not uncommon to conduct these activities only to satisfy project requirements and without full understanding of the importance of their project to the target clientele. To meet this particular need, it was emphasized in every workshop that the main objective of forestry extension activities is "To improve the knowledge, attitude and skills of target beneficiaries so that they will participate more actively in various forestry activities."

Framework

District Forestry Officers are essentially middle level managers. They manage district and lower level staff. In line with their role, DTCP adopted a modified "management cycle" as a framework for developing the training course on FEP. The "management cycle" is a way of viewing extension activities (or other forestry activities) as a continuing and interrelated process. The cycle is composed of six steps:

1. Planning
2. Staffing
3. Coordinating
4. Implementing
5. Monitoring
6. Evaluation

The first step in the cycle is planning. The parts of the plan used in FEP are:

1. Situation Analysis
2. Objectives
3. Strategy
4. Workplan
5. Component Plans (The Component Plans are actually details of the main activities in the workplan).

Component Plans

DTCP realized that the extension activities of DFOs could be classified into four areas: 1) training; 2) production of communication materials; 3) conduct of field activities; and 4) monitoring and evaluation. These activities were matched with existing DTCP communication campaign planning forms (Najib and French, 1985), which were consequently expanded and adjusted to accommodate specific DFO planning needs. The following component plans for forestry extension were identified:

1. Training Plan, including orientation and training of implementing staff, meeting with local leaders and farmer leaders, field visits, and study tours.
2. Media Plan, which is comprised of development, production, distribution, and utilization of communication materials.
3. Field Plan, which covers home visits, A-V mobile van showings, holding of traditional songs, poems, dances and games with participation from the target beneficiaries.
4. Monitoring Plan, which looks into the activities and outputs of the project staff to determine the progress of project activities.
5. Evaluation Plan, which is primarily concerned with the effect of the extension activities and outputs on the knowledge, attitude, participation, practice, and skills of the target beneficiaries.

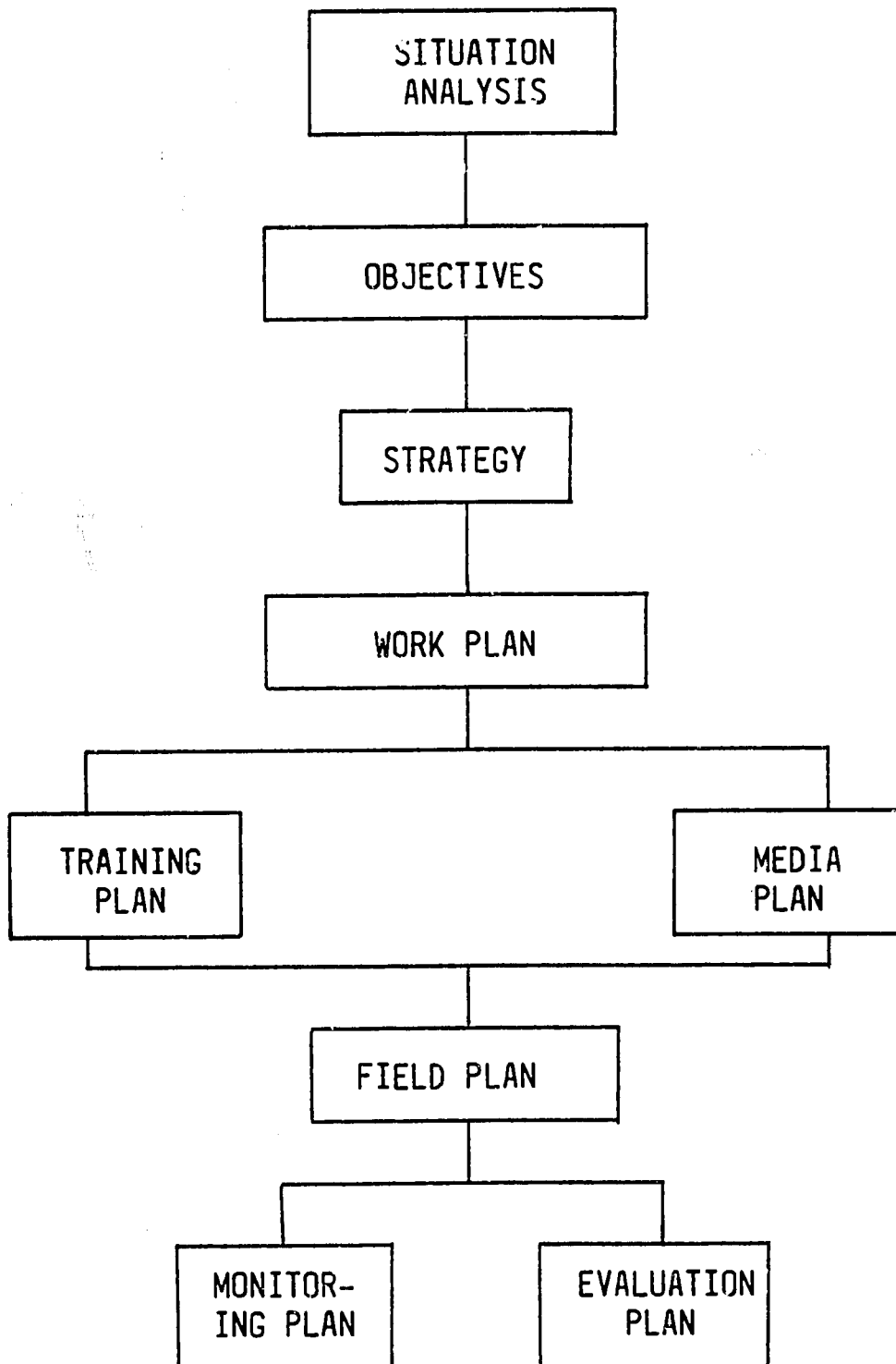
Figure 1 presents the parts of the forestry extension plan which include the component plans.

Features

The training course for Forestry Extension Planning for DFOs has distinct features which make it rather unique compared to other similar training programs.

1. Human-oriented - The course emphasizes to the DFO participants, who are mostly technology-oriented, that extension focuses on the development of man while the other activities of the project may focus on the development of trees.
2. Management-oriented - The course explains to the participants that planning is the first task of a manager. A plan helps the manager in using his limited resources, such as manpower, funds, facilities, supplies, equipment, information and time, efficiently and effectively. A plan becomes fully useful when there are staff assigned to implement it; when planned activities are monitored, and when the effects of these activities on the target beneficiaries are evaluated.
3. Realistic - The course cautions the participants that a plan should be designed according to the skill of the existing manpower and the availability of other resources. The less skilled the manpower and the more limited the other resources, then the simpler the plan should be. In short, the plan should be based on a realistic assessment of the situation in the area. It should be simple, implementable, and flexible.
4. Responsive - The course reminds the participants that the extension plan should be responsive not only to the needs of the target beneficiaries but also to the objectives of the top management. It is possible that these two do not always coincide. Since management controls resources necessary for implementing the plan, its wishes must be considered in planning the extension program. The plan should also take into consideration the prevailing political atmosphere in the area. Thus, it should provide for the participation of local politicians in planning and implementing the extension program.
5. Oriented to Training of Trainers - The course addresses the issue of the shortage in trained manpower in forestry extension planning in the region. It will take decades to train the large number of forestry staff on extension planning if training is conducted only by training institutions. Therefore, DTCP integrates in its training program opportunities for participants to be trainers of their own staff.

Fig.1 Parts of an Extension Plan



Approaches

DTCP will continue to test the best combination of two general approaches in improving the quality of its training course on Forestry Extension Planning. These approaches are:

1. Theory-practice approach
2. Practice-theory approach

The theory-practice approach starts with a lecture-discussion on the concepts and principles of communication, training, extension and management before the participants relate their experiences in extension planning. The planning forms and the guide questions are discussed before the participants conduct group planning. Groups present their outputs and revise their plans according to the feedback of other participants.

The practice-theory approach starts with the participants' experiences in planning their extension activities. The DTCP resource person lists down the steps each participant observes in extension planning. This list is matched with the DTCP extension planning forms, a process which helps participants realize the need to systematize their planning of extension programs. The concepts and principles of communication, training, extension and management are then discussed as the theoretical inputs of the course. Participants review the planning forms and guide questions, and are divided into working groups of 2-3 members (depending upon the size of the group) for group planning.

In 1987, DTCP tested these approaches with three batches of District Watershed Management Officers in Nepal in a five-day planning workshop conducted in Kathmandu.

Process Monitoring

During this workshop, DTCP used process monitoring to determine the comparative effectiveness of the two approaches. The DTCP resource person himself monitored the reactions of the three batches of DFOs during the workshops. The results showed that the practice-theory approach was more effective than the theory-practice approach in terms of individual and group participation in the discussion when participants have some experience in conducting extension activities.

There was also greater appreciation or interest among the participants of the planning process. Financial, administrative, and political constraints to planning and implementation of forestry extension programs also surfaced during the discussion. Although the three FEP workshops were all rated "successful," many DFO participants recommended that the course should be extended to at least 10 days. The practice-theory approach to the workshop can be seen in the sequence of topics or activities presented in Table 1.

Table 1. Sequence of events in a training with a practice-theory approach.

<u>Topic/Activity</u>	<u>Purpose</u>
1. Registration	- To know the identity of the participants.
2. Opening Program	- To welcome the participants and the resource person and to explain the purpose of the project management in conducting the workshop.
3. Clarification of Workshop	- To clarify to the participants the rationale, objectives, activities, and outputs of the workshop.
4. Presentation of extension and related activities by participants	- To identify their practices in extension and the steps they follow in planning.
5. Presentation of the list of extension activities reported by participants and the parts of the planning forms by DTCP staff	- To show the participants the fit between planning activities and the planning forms to be used in the workshop.
6. Presentation of the changing concepts of extension and the concepts and principles in communication, training, extension and management by the resource person	- To help the participants realize the importance of extension in obtaining people's participation and to identify the role of communication, training, and evaluating extension activities.
7. Discussion on the rationale for extension planning, components of the plan, and the process in filling up the forms	- To help the participant appreciate extension planning and to demonstrate to them the way to fill up the planning forms.
8. Discussion on the guide questions in filling up the forms	- To clarify the process in completing each part of the planning forms.
9. Planning of extension plan by groups of 3-4 members (depending on the number of participants)	- To give the participants opportunities to consult one another and to share the work among themselves.

(Table 1, continued)

<u>Topic/Activity</u>	<u>Purpose</u>
10. Presentation of extension plans and discussion, comments and suggestions in improving the plans	- To improve their skill in presenting and preparing reports.
11. Revision of extension plan in view of relevant suggestions of the participants and the resource person.	- To improve the participants' skill in refining their extension plan.
12. Review of the revised plan by the DTCP resource person	- To ensure relevant suggestions were considered by each group in adjusting the extension plan.
13. Presentation of plan to the Chief of the Department of Watershed Management, the FAO Chief Technical Adviser and the National Project Manager	- To obtain comments and suggestions on the reports and to inform them about the accomplishments of their officers in the workshop.
14. Distribution of evaluation questionnaires to the participants	- To evaluate the reactions of the participants and the effects of the workshop on their knowledge and attitude.
15. Closing Program	- To obtain the impressions of the participants, the resource person, and the management about the extension planning workshop.

Evaluation

DTCP is especially keen on determining at least the immediate effects of its occasional and regular training courses. The Forestry Extension Planning course and the other courses are evaluated repeatedly with the use of a reaction learning questionnaire and an analysis of workshop outputs submitted by participants. The end goal is to develop a model training course(s) on forestry extension planning for DFOs. DTCP also intends to develop forestry extension planning courses for other forestry staff.

Utilization

Results of process monitoring and the reaction-learning evaluations are utilized to continuously improve the approach, contents, presentations, and other aspects of the Forestry Extension Planning course and other DTCP training courses. This continuing review of its training courses is in line with DTCP's desire to maintain the best possible quality standards in its training courses.

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4. APPENDICES



Mr. S.S. Puri presenting the key-note address

Address by Mr. S.S. Puri
Assistant Director-General and Regional Representative

Distinguished Participants, ladies and gentlemen.

It gives me great pleasure to welcome all of you to this Regional Consultation on Planning Forestry Extension Programmes. I understand the Consultation is being attended by participants from 10 countries of South Asia and South East Asia.

As you are aware, the Regional Wood Energy Development Project, funded by the Government of the Netherlands and executed by FAO, is the organizer of this Consultation, I welcome this initiative on the part of the project authorities because, in my view, the theme of the Consultation, namely, Forestry Extension, is of considerable importance,

As far as I am aware, forestry extension is a matter which has attracted attention only in recent years. More than three decades ago, when I started my civil service career, a number of divisional forestry officers were working with me but I have no recollection of any of those distinguished gentlemen ever making any reference to any role on their part in regard to forestry extension. Basically, the conventional role of forestry officer has been that of a policeman for the forest estate in his control. It is in the last decade or so that a realization has grown that forestry is too serious a matter to be left entirely to professional foresters only. Forestry's role in promoting tree farming by individual farmers or by the community is a significant and new major development in the forestry sector. It would perhaps be true to say that far more afforestation is taking place under the auspices of non-foresters than through the official efforts of the conventional forest departments. It is in this context that forestry extension is increasingly emerging as a matter of priority and, therefore, I am very happy to welcome the convening of the Consultation, whose conclusions and deliberations, I trust, will facilitate formulation of guidelines for action by governments and also by FAO in general and the regional project in particular.

In the course of my official career, particularly in my assignment as Agriculture Secretary to Government of India, I had a great deal to do with agricultural extension. I would like to say a few words about the nitty-gritty of planning of forestry extension largely based on my experience in the area of agricultural extension and administration.

To begin with, I would like to say that in my view, planning for forestry extension must be concerned basically with the following four sets of issues:-

- i) What to extend
- ii) To whom to extend
- iii) Methods of extension, and
- iv) Agency for extension

I would like to say a few words about each one of these aspects.

As regards the question, what to extend, I may point out that this is a fundamental pre-requisite for any successful extension organization. Quite evidently if an extension organization has no worthwhile technical message to convey, it will sooner or later be found out and will lose its effectiveness. In the sector of agriculture it was only after the high yielding varieties emerged that the extension agencies had an important and worthwhile message to convey to the farmers. Therefore, development of an appropriate system, either concurrent with the extension system or preferably prior to the extension system is an absolute must. This development of research must be relevant to the task and the message which the extension agency has to carry to the individual farmers or community of farmers.

I am not fully familiar with the current trends of forestry research but it is my general understanding that a great deal of forestry research is essentially focussed on problems of forest management and wood utilization. It is silviculture and other aspects of the problem which usually tend to occupy the centre of the stage in so far as forestry research is concerned. Tree farming and agroforestry, by and large, were neglected and took a back seat among the priorities of forestry research institutions. Therefore, one of the pre-requisites for planning of forestry extension is to reorient the forestry research programmes and to identify, develop and adopt technical messages which the extension agencies can carry to the farmers.

Next I would like to say a few words about the methods of extension. In the agricultural sector in Asia, over the last one or two decades, a great deal of experience has been gained in regard to different methods of extension. More than two decades earlier, extension methods essentially became stereotyped and used to revolve around field demonstration. I recall one of the Agricultural Commissioners in India, relating a joke, that the diary of a typical extension worker, almost every fortnight, has the same two sets of entries, namely: a) demonstration plot laid today b) demonstration plot shown to the farmers today. Fortunately, in recent years, many new tools and methods for communicating messages and undertaking extension have been developed. These include the use of various mass media and other audio-visual aids. Development support communication has tended to become almost a fine art. However, in the forestry sector, perhaps it would be still useful to make plans based on conventional and time-honoured extension methods.

In the agricultural sector, on the scope of extension work, there have been some rather significant areas of controversies. One of these controversies has been the question: whether extension agencies should or should not be responsible for facilitating supply of inputs and credit, in addition to conveying technical know-how to the farmers. The T and V system which has been adopted by several countries of the Region is essentially centered on the assumption that an extension agency should not be loaded with the responsibility of facilitating input supply and credit and should remain essentially confined to the function of carrying technical messages through an intensive series of training and visits.

In my present statement, I do not think I can do justice to the wide question of merits and demerits of T and V system vis-a-vis, the agricultural extension programmes. For the present, I would confine myself only to a couple of very general statements. Firstly, even in the relatively developed agricultural sector, there are several pertinent questions about the effectiveness of T and V agricultural extension system. In the forestry sector, where extension system is comparatively new, it would perhaps be not appropriate to develop an extension organization which is divorced from the allied problems of supply of input, credit, etc. In my view, an effective agency for forestry extension should act as a friend, philosopher and guide to the beneficiary family in respect of all aspects of farming. It is only then, hopefully forestry extension will be able to secure the support of the target groups and be able to make an impact on the large and challenging problems of farming trees outside the conventional forest areas.

This Consultation is a necessary step to develop a deeper understanding of not only the problems but the organization and methods of forestry extension to be adopted. We have here experienced professionals from 10 countries who have specific knowledge of the topic. I am sure your deliberations will lead to a better understanding of the issues and pave the way for follow-up action. I wish this meeting every succes and welcome you all once again to the FAO Regional Office.

Thank you.

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TIMETABLE

<u>MONDAY</u> (7 March, 1988)	08.30-09.00	:	Registration
	09.00-10.00	:	Opening Ceremony
	09.00		Introduction of Participants and Election of Chairman
	09.05		Keynote Address by Mr. S.S. Puri, ADG/RR, FAO/RAPA
	09.30		Statement by Mr. H.A. Hilmi, FAO/FORE
	09.50		Statement by Mr. R.S. Gujral, FAO/RWEDP
	10.00-10.45	:	B R E A K
	10.45-11.15	:	Introduction to Consultation Programme by Mr. C. P. Veer, FAO/RWEDP
	11.15-12.00	:	Presentation of Country Status Reports
	12.00-13.00	:	L U N C H
	13.00-14.45	:	Presentation of Country Status Reports
	14.45-15.15	:	B R E A K
	15.15-17.00	:	Country Status Reports (Continuation)
<u>TUESDAY</u> (8 March, 1988)	08.30-09.30	:	Concluding Discussion: Forestry Extension in Asia; Issues and Prospects (Dr. Y.S. Rao, FAO/RAPA)
	09.30-10.30	:	R and D support for Forestry Extension (Dr. J.B. Raintree, ICRAF and Ms. M.W. Hoskins, FAO/RODP)
	(Discussant)		Mr. K. MacDicken, F/FRED
	10.30-11.00	:	B R E A K
	11.00-12.00	:	Rapid Rural Appraisal for Forestry Extension (Drs. T.B. & S.W. Grandstaff, E.W.C.)
	(Discussant)		Dr. G. Diokno, ERDB
	12.00-13.00	:	B R E A K
	13.00-14.00	:	Working Session/Worksheets
	14.00-14.45	:	Micro-Planning for Forestry Extension (Dr. A.K. Banerjee, World Bank, New Delhi)
	14.45-15.30	:	Participatory planning at local level (Mr. P. Hoare, Chiangmai University)
	15.30-16.00	:	B R E A K
	16.00-16.45	:	Planning for Community Management (Mr. Y.B. Malla, Nepal-Australia Project)

WEDNESDAY

(9 March, 1988)

08.30-09.00	:	Participatory Planning, Monitoring and Evaluation (Ms. A.S. Stephens, FAO/RAPA)
09.00-09.30	:	Concluding Discussion: Participatory Planning of Forestry Extension (Ms. M.W. Hoskins, FAO/FODP)
09.30-10.30	:	Working Session
10.30-11.00	:	B R E A K
11.00-11.30	:	Betagi Community Forestry (Prof. A. Alim, Ret'd. CCF)
11.30-12.00	:	Forestry Extension Approaches (Dr. A.C. Duldulao, FAO, PAK/78/036)
12.00-13.00	:	L U N C H
13.00-14.00	:	Forestry Extension Organization (Mr. H.A. Hilmi, FAO/FORE)
14.00-14.30	:	Organization for Forestry Extension (Mr. N. Vergara, FAO/THA/86/016)
14.30-15.00	:	Training in Forestry Extension Planning (Dr. C. Mercado, DTCP)
15.00-15.30	:	B R E A K
15.30-16.00	:	Forestry Extension Training (Mr. H. A. Hilmi, FAO/FORE)
16.00-16.15	:	Curriculum Development in Universities (Mr. E. Seneviratne, Univ. of Jayewardenapura Sri Lanka)
16.15-16.30	:	Community Forestry Curriculum Development (Mr. M. Stevens, RECOFTC)
16.30-17.00	:	Discussion

THURSDAY

(10 March, 1988)

F I E L D V I S I T		
(Project THA/86/016 Participatory Forestry Through Extension)		
06.00	:	Departure
20.00	:	Return

FRIDAY

(11 March, 1988)

09.00-10.30	:	Group Discussion: Conclusions and Recommendations
10.30-11.00	:	B R E A K
11.00-12.00	:	Action programmes and international cooperation.
12.00-13.30	:	L U N C H
13.30-14.30	:	Discussion: Conclusions, recommendations, follow-up.
14.30-15.00	:	Closing Session

SATURDAY

(12 March, 1988)

: D E P A R T U R E

Note of Field Visit
to Forestry Extension Demonstration Center No. 6
of the UNDP/FAO/SIDA project

THA/86/016 - Participatory Forestry Through Extension

Khao Phu Luang forest reserve is situated in Nakhon Ratchasima Province, 300 kms. northeast of Bangkok. From 1980 to 1985, a pilot project was carried out in an area of 9,440 ha (UNDP/FAO/RFO "Development of Diversified Forest Rehabilitation"). The aims of this project were to rehabilitate portions of degraded natural forests in 40% of the area, with the simultaneous improvement of the socio-economic conditions of the forest settlers in the remaining 60% of the pilot area.

In the forest rehabilitation programme 1.89 million seedlings have been produced to plant 728 ha. of forest plantations located between the remaining natural forests and the agriculturally used lands. Over 40 ha. of woodlots, avenues, border trees, etc. have been established. Nearly 400 ha of natural forest pockets were protected from destruction and action research plots have been established. Forestry practices and techniques were extended to some 800 families.

In the socio-economic development programme, six villages have been established and infrastructure provided such as roads and weirs, improvement of schools, health centers, and agricultural extension services.

Land for allotment of usufructuary tenure to 890 families was surveyed. Additional assistance was provided through facilitating of credit and the organization of specific training courses in promising income generating activities such as beekeeping, aquaculture, fruit orchard establishment and management, etc.

Study tours and training of both field staff and farmers were important elements in the project.

Based on the lessons learnt in this and other pilot projects, it is now attempted to further develop and disseminate forestry extension approaches through 8 demonstration centers in various parts of Thailand, under the project, "Participatory Forestry Through Extension".

Participants were briefed about his national project by Mr. Napoleon Vergara, CTA, THA/86/016 and on the demonstration center's area and activities by Mr. Pairoth Pinyosorasak, National Director of the Demonstration Center. To demonstrate the project activities plantations and a nursery were visited, as well as resettled villages, 5 participating farmers and a school plantation.

Ideas and Agendas for Action

Introduction

During the consultation, participating experts were requested to provide their advice on relevance and priority of the themes discussed during the consultation, for their countries' extension programs.

In the following their reactions are summarized by country on:

- I. Extension Research and Development, (see papers Raintree and Hoskins and Diokno).
- II. Participatory Planning (papers Stephens, Hoare, Banerjee, Malla et.al., Payuan, Alim)
- III. Implications of participatory forestry extension approaches for policy, organization and training (papers Vergara, Hilmi, Mercado)
- IV. Priorities for international cooperation in forestry extension development (based on discussions).

Under each of these categories participants were requested to indicate the priority and feasibility of development in their country;

- 1 = indicating high priority and feasibility
- 2 = high priority but low feasibility
- 3 = no need

Based on these assessments, participants designed an indicative Agenda for Action for the coming three years, presented on the last page of this appendix.

Ideas for Action

I. Extension R and D (see Raintree/Hoskins and Diokno)

Priorities/feasibility: 1 = high priority and feasible
2 = high priority, not feasible
3 = no need

1. Documentation of selected Extension R and D approaches/programmes (examples of community-based, design-oriented, multi-disciplinary R and D), identified during (and after) the consultation, followed by Regional Workshop.

<u>Priority:</u>	high	high/not feasible	no need
	1	2	3
	Bangladesh	Nepal	
	Burma		
	India		
	Indonesia		
	Pakistan		
	Sri Lanka		

2. Support in training of staff and design of a pilot exercise in Extension R and D with representatives of selected institutes/agencies:

<u>Priority:</u>	1	2	3
	Bangladesh		
	Burma		
	India		
	Nepal	Indonesia	
	Sri Lanka		

3. In countries with pilot Extension R and D already on the ground:

- a) Testing/adaptation of methodology under different socio-economic/organizational and/or ecological conditions.

<u>Priority:</u>	1	2	3
(Testing)	Bangladesh	(Adapt.) Burma	
	Indonesia		
	Nepal		
	Sri Lanka		

b) Improve specific aspect of methodology/approach

Please specify which aspect (appraisal/identification, system design, adaptation, local organizations, etc.)

<u>Priority:</u>	high	high/not feas.	no need
	1	2	3
	Bangladesh		
	Burma		
	Indonesia		
	Nepal		
	Sri Lanka		

c) Improve communication/coordination with forestry extension agency (through study tour to selected example, workshop, others)

<u>Priority:</u>	1	2	3
	Bangladesh		
	Burma		
	Indonesia		
	Nepal		
	Sri Lanka		

4. Other ideas for development/initiation of Extension R and D

- Bangladesh: a) Watershed
b) Use of common access marginal and community land
- Burma : a) Expertise appraisal report for initiated organization
- India : Organize national workshop to begin with:
a) to sell the idea; and
b) to initiate pilot project
- Indonesia : a) Organize consultation/workshop at national level to set up action plan and guidelines for E.R. and D. in the country
b) Cooperate and coordinate with R and D Department and universities to initiate students/assistant researchers involvement in the social forestry/participatory planning operations
- Nepal : Exchange through visits

II Participatory Planning (see Stephens, Hoare, Banerjee, Malla et al., Payuan, Alim)

5. Design of in-service pilot training exercise, including the making of a plan in a real-life situation, with interested foresters.

<u>Priority:</u>	high	high/not feas.	no need
	1	2	3
	Bangladesh	Sri Lanka	
	Burma		
	India		
	Indonesia		
	Nepal		
	Pakistan		

6. Acquisition of training material in participatory planning, monitoring and evaluation from different countries, for adaptation and use in existing training courses.

<u>Priority:</u>	1	2	3
	Bangladesh		India
	Burma	Indonesia	
	Nepal		
	Pakistan		
	Sri Lanka		

7. Workshop on participatory planning in forestry with international contributions.

<u>Priority:</u>	1	2	3
	Bangladesh	Burma	
	India		
	Indonesia		
	Nepal		
	Sri Lanka		

8. Improvement of existing or planned demonstrations in:

a) Forest management

<u>Priority:</u>	high	high/not feas.	no need
	1	2	3
	Bangladesh Burma India Indonesia Nepal Sri Lanka	Pakistan	

b) processing:

<u>Priority:</u>	1	2	3
	Burma	India Indonesia Nepal Sri Lanka	

c) Other:

<u>Priority:</u>	1	2	3
	Burma Indonesia		

9. Other ideas to introduce/improve participatory planning in forestry extension:

- Bangladesh:
- a) Training of Uppazilla and Union Council Chairman
 - b) Agricultural extension village level workers
 - c) NGOs
- Burma :
- a) Choice of implementor in Forestry Extension Organization
 - b) Advisory committee to be established in regions concerned
 - c) Enhance institutionalization
- Indonesia :
- a) Boundary issues (particularly on outer Java forest lands: land tenure/land use plan etc.)
 - b) Management plan of community based forest management in natural forest lands and/or industrial forest management plan (timber-estates, etc.)
- Sri Lanka :
- Case studies and evaluation

III. Implications for policy, organization and training

(see Vergara, Hilmi, Mercado)

10. Review of forest policy, laws, regulations and administrative procedures to identify obstacles from forestry extension point of view.

Followed by identification of ways and means to adapt/change.

<u>Priority:</u>	high	high/not feas.	no need
	1	2	3
	Bangladesh	Sri Lanka	
	Burma	Indonesia	
	India		
	Bangladesh		
	Pakistan		

11. Assessment of organisational structure and processes to identify possibilities for improvement, from a forestry extension point of view.

<u>Priority:</u>	1	2	3
	Burma		
	India		
	Indonesia		
	Nepal		
	Pakistan		
	Sri Lanka		

12. Curriculum development for participatory planning in:

a) profesional level training:

<u>Priority:</u>	1	2	3
	Bangladesh		Burma
	India	Indonesia	
	Nepal		
	Sri Lanka		

b) vocational level training:

<u>Priority:</u>	1	2	3
	Bangladesh	Burma	Sri Lanka
	India		
	Indonesia		
	Nepal		

c) technician level training:

<u>Priority:</u>	high	high/not feas.	no need
	1	2	3
	Bangladesh		
	Burma		
	India		
	Indonesia		
	Nepal		
	Sri Lanka		

13. Other ideas to adapt policy, organization and curricula:

Bangladesh: Connect research, education and extension operators, both in field as well as institutionally

Indonesia : Need for a very strong and effective coordination arrangement between forestry department, finance department, national planning board, department of education and culture at the national level.

IV International cooperation

14. Develop international network to exchange information and support innovations in forestry extension.

<u>Priority:</u>	1	2	3
	Bangladesh		
	Burma		
	India		
	Indonesia		
	Nepal		

15. Other ideas for international assistance, inter-country exchange etc.:

Bangladesh: Frequent visits

Burma : Advisory group for region concerned

Indonesia : 1) Organize so-called roving seminar in different countries of the region
2) Organize study tours/group visits to pilot/demonstration sites of social forestry/extension centres in the country
3) Develop "network focal point", with the initiative of FAO/RAPA
4) Document successes/failures of social forestry and extension of the region and disseminate

Sri Lanka: International assistance is needed to train the extension officers in communication skills

Agendas for Action

	<u>1988</u> *	<u>1989</u>	<u>1990</u>
Bangladesh	1,2,4	3,5,6,7,9	8,10,11,12,13,14,15
Burma	1,2,3,5	6,8	7
India	1,5,8a	2,4,7,8a 10,11,12,14	8a,10,11,12,14
Indonesia	<ul style="list-style-type: none"> - National Workshop on Social Forestry in Jakarta - Community Organizer of social forestry training in several locations (50-100 persons) - Newsletter and journal of Social Forestry - Training of 200 extension workers, 60 supervisors and 30 specialists - Farmers training (180 farmers) in different regions - Expansion of pilot projects and demonstration plots 	<ul style="list-style-type: none"> - Expanding and strengthening social forestry programme and extension activities (policy, planning, implementation, monitoring, evaluation) - Develop shifting cultivation resettlement projects in line with national SF program (8,400 households) 	Continuation and expansion and strengthening of 1988 and 1989 programs in social forestry and extension programs
Nepal	<ul style="list-style-type: none"> - To incorporate the extension curriculum in the Forestry Institute - Strengthening the present CFAD's motivation and education and monitoring and evaluation unit 	<ul style="list-style-type: none"> - Extension workshop - Training programme design for extension agents - Initiating pilot scale of participatory management of forest 	<ul style="list-style-type: none"> - Follow-up workshop - Training the extension agents
Pakistan	11,10,1	9,5	4a,4b
Sri Lanka	6,10,3,11	1,7,5,2,8	9,12

* These numbers refer to items 1 to 15 in the previous section (e.g. 1= Documentation of selected E.R. and D approaches, etc.)

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